FOUND · AN · INSTITUTION · WHERE · ANY · PERSON · CAN · FIND · INSTRUCTION · IN · ANY · STUDY · EZRA · CORNELL · I · WOULD ·

To "Ted" Kangas

with best for a great
success in life,

from
Kate M Schutt

Ithaca, June 20, 1938

To "Our Thanks"

With best wishes for every success in life,

Yours

Bob Hope

Boston, June 29/1934

CONCERNING CORNELL

THIRD EDITION
COMPLETELY REVISED
1924

Cornell Co-operative Society
Ithaca, N. Y.
Trade Agents

CONCERNING CORNELL

BY

O. D. VON ENGELN, '08
PROFESSOR OF PHYSICAL GEOGRAPHY
IN CORNELL UNIVERSITY

THIRD EDITION

CORNELL CO-OPERATIVE SOCIETY
TRADE AGENTS
ITHACA, NEW YORK
1924

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THIRD EDITION - COMPLETELY REVISED
1924

The Morrill Press
Fulton, N. Y

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An Old Colonial Home in Ithaca 432

ACKNOWLEDGMENT
(SECOND EDITION)

THE author desires to express his deep sense of obligation to the many different persons who helped him in the original production of this volume and with its revision for this, second, edition. To mention all by name would require more space than this page affords and to omit anyone would be ungracious, since each of their contributions was essential to the making of the book. But it is only proper that the work of the Faculty Committee intrusted with the critical reading of the original manuscript be specifically acknowledged. To the promptness of these gentlemen at that time and their kindly attitude the writer owes much.

It is appropriate, also, that the aid of the many readers of the first edition be gratefully acknowledged. Their collective approval and purchases have made possible, so soon after the first issue, this second and revised edition.

The record of the first fifty years of Cornell still constitutes the bulk of the volume. But in the revision it has been endeavored also to incorporate the, already noteworthy, accomplishment of the second new era of Cornell; particularly as such rejuvenescence is in accord with the prediction of the Preface to the First Edition.

NOTE TO THE THIRD EDITION.—Although only a few years have passed since the Second Edition was issued many changes have taken place at Cornell. Since then the university has come under the able administration of Dr. Livingston Farrand. The magnificent Baker Laboratory of Chemistry and the Straight Memorial Union building have been added to the equipment of the institution. These are outstanding items. Those of lesser import are so numerous as to preclude their listing here. In the text, however, it is endeavored to make a faithful record of all those changes that have significance. The approval given the two previous issues, together with the indicated need of bringing the contents up to date, is the warrant for a Third Revised Edition

PREFACE TO THE FIRST EDITION

THOMAS HUGHES, who wrote "Tom Brown's Schooldays," and who may, accordingly, be quoted with some appropriateness in a volume such as this, avers that he once made a resolution never to write a preface. His idea seems to have been that a preface is unnecessary if the author is content to have his aim read in what he has written. But, alas, in its sixth edition, Thomas Hughes broke his resolution in order to defend both the content and the purpose of the famous book. In view of this history the present writer may be pardoned for inserting the apology, if such it is, in the first edition, in order to make sure that it will appear at all.

First, then, it is hoped that this book is not the one too many. A shop-girl, at Christmas time, puzzled to find a suitable gift for a friend, consulted a mutual acquaintance. "Why," said the confidante, "get her a book." "No," answered the prospective donor, "that won't do, she has a book already!" In a university community most every one has a book. Yet it may be that there is still room on the shelf for another, and it is the hope, perhaps fond, of the author that this volume will fill that place.

Next it should be said that the excuse the author offers for attempting to describe Cornell is that he has frequented her halls both as an undergraduate and graduate student and as a member of the faculty; and not that he can claim to know

Cornell so intimately as do those who have been much longer in her service. The project in any event is overly ambitious, and in this aspect recalls the lament of the old professor who, after thirty years of study devoted solely to the dative and ablative cases, remarked: "he would much better have stuck to the dative!"

Finally, it is hoped that if the text prove unattractive buyers will find enlightenment and entertainment in the pictures. But with regard to these there is also occasion for misgivings; for it was found that the barber who formerly presided over the third chair back had been discharged because "he got so he illustrated his stories with cuts."

Seriously, there is a good reason for the appearance of such a volume as this at the present time, for its publication will help to invite attention to the fiftieth anniversary of the founding of Cornell, 1868-1918. The end of the world war may well mark the initiation of a new era in the history of the institution. In that case these pages will afford some summary of the first fifty years of progress, at any rate in contrast with what the future shall bring forth, even though the great strides forward of the past are herein lamely told. It is with this idea in mind that the writer presumes so far as to think that the volume may have some permanent value.

And, as is usual, the preface is the last word set down; at that time the need for apologies is most acutely felt.

ITHACA, N. Y., 1917.

CONCERNING CORNELL

CORNELL

A POEM*

By President Albert W. Smith

Lo, at her feet the valley lies;
  She stands in changing shade and shine
Of brood'ng clouds and sunny skies
  Amidst the hills of oak and pine.

Her bel's ring out o'er winter's snow,
  To summer skies, in autumn's haze;
And many murmuring waters flow
  Where we exulting sing her praise.

She sees the lake with mirrored shore,
  Or swept by winds and flecked with white.
Beneath the stars she watches o'er
  The city twinkling through the night.

The chiming hours too swiftly run
  While blithe or sad we tread her ways,
Till all the golden days are done
  In which we learn to sing her praise.

*This poem was originally very kindly offered by, then, Dean Smith for first appearance in this volume. Owing to a delay in publication it was earlier printed elsewhere set to music.

CHAPTER I

THE CAMPUS

IT MUST be confessed that most of us are creatures of environment, in that we are depressed and unhappy if our surroundings are not agreeable. We do our best work, we dream big things when the spirit is free from the petty discomfort aroused by any unfitness of the scene. It is true that the genius may rise above such minor distractions and achieve greatness in a sordid habitat. But the average person becomes sensible of leisure, and of ambition to enjoy a broader intellectual life, most keenly when the flesh is satisfied and the mind content. He smiles when nature smiles. It is, therefore, pleasant to write down, as a first thing in this book, that the Cornell Campus is beautiful. Beautiful, not merely as pretty, but in a way that inspires one with a profound conviction of the entire appropriateness of the scene and its setting. Nor is this the pronouncement only of the writer and of the tribe of Cornellians. Unprejudiced visitors, both foreign and American, have been unstinted in their praise; they have declared that the site of Cornell is practically unrivalled elsewhere in the world, that it is uniquely fit for a seat and abode of higher learning. No need here for damning with faint praise.

While many details give each their touch to make up the attractiveness of Cornell as a whole, a broad perspective first, will best serve to put

those readers who are unfamiliar with the university in sympathetic touch with my theme. Some kind of standard on which to base a judgment is needed. Thus the surroundings of European universities, particularly those of England, are proverbially charming and picturesque. Much of this attractiveness they owe to the dignity and mellowing effects that come with age. It is not so with Cornell. One can best appreciate this by going back, only a comparatively few years, with Cornell's revered first president, Andrew D. White, to the time when Cornell was but a vision of the future. In the introduction to a pamphlet for the guidance of class secretaries, published in 1914, Mr. White wrote:

> It is difficult for me to realize that the day-dreams of Ezra Cornell and myself as we stood together for the first time on the hilltop which has since become the campus and discussed plans for the university which now bears his name, have become realities within a single generation. The wooded ravines of Cascadilla and Fall Creek were beautiful then as now, but the clear land between was but a meagre pasture, furrowed by ancient glaciers and divided by rail fences, with only here and there a tree left standing in a soil apparently too scanty to be valuable. The Cascadilla Building of gray stone in the distance and a few cottages and barns were the only structures on these two hundred and fifty acres. The ideal so firmly fixed in the mind of Mr. Cornell of a university with many buildings and with hundreds or perhaps thousands of students, seemed so remote as to be mere phantasy. The village of Ithaca, clustered among the trees of the valley below us, the wide sweep of the wooded hills beyond and the blue water of Cayuga in the distance were vivid

realities; but the university domain which has now become increased to more than a thousand acres, with its scores of buildings, its towers and spires, its chiming bells and the hurrying crowds of students were as yet unthought of.

In the closing sentence of the quotation above, Mr. White gave a suggestion of the present day Cornell. By attempting to form a concept of an ideal site for an American University, we can in certain measure put ourselves in the position of the Founder and Mr. White in those early days when they dreamed and, above all, planned the future. In some such frame of mind the Harvard writer must have been who pictures the distress of an entering freshman of that university on finding Harvard a composite article made up of many more or less insignificant buildings crowded in by commonplace streets. He had expected to find it, no doubt, the typical American college, a few imposing edifices surrounded with glorious country, a great campus and the Charles River. The few red buildings forming the rectangle, looked like something out of the ordinary it is true, but still he half doubted, and to make sure he hailed the first man who looked like a student with: "Say, is this Harvard?" If we can agree with the Harvard writer's characterization of what the setting of a typical American university should be, then we are in a position to appreciate how completely the present day Cornell fulfills such an ideal. There are more than a few imposing edifices and they are not surrounded by commonplace streets. Instead they

rise, with impressive individuality, from a commanding site. The glorious country, miles and miles of it, stretches out to view on every side and the university dominates it all. The campus is truly great, it encompasses more than a thousand acres, and the scenery that is its very own is in itself romantic enough to give inspiration to an American Walter Scott. In place of the Charles River one may look with even greater enthusiasm upon the fair expanse of Lake Cayuga, winding northward to the horizon.

The greatest of these advantages, the commanding site from which the glorious country and the prospect of the lake are visible, was present at the university's beginning. The elevated position of the campus is expressive of the high ideals and lofty aspirations of Cornell. But the charm of the Cornell setting is more intimate and pervasive than could be engendered by simply crowning the hill. It is within the quadrangle, sequestered on all sides by the college buildings, that one becomes particularly imbued with that indefinable feeling called college spirit. It would be difficult to tell from whence exactly emanates this consciousness of something partaking at once of cloistered learning and throbbing life. The buildings must certainly contribute a part. Although comparatively few years have elapsed since the formal opening of the university in October, 1868, much of the quality of quiet dignity, of tested fitness, has become attached to Cornell's halls. They lack the moss-grown picturesqueness of the continental institu-

Photo © Troy

THE COMMANDING SITE OF CORNELL

A Short Cut to Learning on the Cornell Campus

tions but they are old enough to be mantled by the ivy. Hence, from the vantage point of the Cornell quadrangle, one can not feel much sympathy for the American professor who quotes from Mr. Benson's essay "From a College Window" as follows:

> My room looks out into a little court, there is a plot of grass, and to the right of it an old stone-built wall, close against which stands a row of aged lime-trees. Straight opposite, at right angles to the wall, is the east side of a Hall, with its big traceried windows enlivened with a few heraldic shields of stained glass. While I was looking out today there came a flying burst of sun, and the little corner became a sudden feast of delicate color, the rich green of the grass, the foliage of the lime-trees, their brown wrinkled stems, the pale moss on the walls, the bright points of color in the emblazonries of the window, made a sudden delicate harmony of tints. I had seen the place a hundred times before without ever guessing what a perfect picture it made. Inside the porter sat in his comfortable den with his feet on the fender, reading a paper . . . . .

After this quotation, the American professor bemoans his fate because he finds that from his office window at the university:

> The outlook is pleasing but lacks inspiration. The grass is green enough, when not wholly worn shabby by students seeking a short cut to learning. The American elms rival the English lime-trees, the sun is brighter, the sky bluer than across the waters. But there is no den, no porter!

It is quite evident that this professor is not from Cornell. Though the environment of his college may not be ideal, it is clear, also, that some-

thing American is lacking in his make-up if he can not find inspiration in the brighter sun, the bluer sky, and the graceful American elms. We may be sure that the Cornell elms already outrival the aged English lime-trees although the elms have not yet attained their full maturity of growth. The "short cut to learning" is present also on the Cornell quadrangle. Of it we are no less than proud. Far from being a source of irritation such paths add much to the pictorial interest of the scene. Moreover, while ivy-mantled walls and stone walks, hollowed by the passing of many feet, bestow a distinctive charm that bespeaks the mellowing effect of age, it must not be forgotten that Cornell is still growing. The number of her students increases each year and new buildings rise to accommodate them with classrooms. With enough of age to give stability, one feels that this growth expresses the strong vitality of the university. Accordingly the excavations for a new foundation are not an eyesore.

But, please pardon the perversion, we must not neglect the trees by looking at the woods too long. I want that you should know and enjoy Cornell in all her intimate detail. Let us therefore undertake a systematic tour of the Campus, lingering here and there on the trip, as our inclination may dictate, to get some insight of the living, as well as of the material organism of the university. I have you with me in spirit, yet you must see everything through my eyes, and I can only talk to you in cold print. There is danger that the picture may be

The Knoll
CORNELL HEIGHTS
FOREST HOME
BEECH LAKE
Playground and Common
Kite Hill
Hoy Field (Baseball)
Women's Playground
City Cemetery
¼ Mi.
½ Mi.
¾ Mi.
THE CAMPUS OF
CORNELL UNIVERSITY

distorted. I must always remember that we are doing this together and that as your interest is in the things that are directly before us, I must keep our progress to an orderly course lest I lose you. Mine, you see, would ordinarily be a difficult role, and I might hesitate to undertake the part were it not for the fact that to cloak my indifferent ability as a guide, there will be something to interest us every bit of the way.

THE WHITE GATEWAY

We enter the Campus at its southwestern corner where town and gown are marked off by the White Gateway, a substantial memorial of sandstone masonry, with inscriptions and adornment that admirably express the spirit of the institution. The iron scrollwork that forms the central crosspiece of the gateway bears the original university seal and motto expressing, in his own words, Ezra

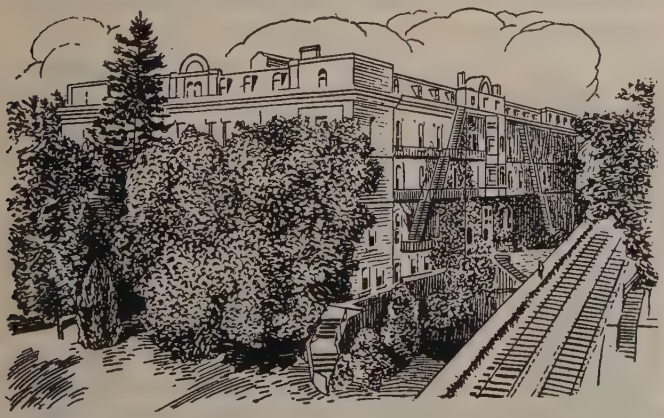
Straight Memorial Union

Baker Laboratory of Chemistry

Cornell's ideal of the purpose of the university from the date of its inception: "I would found an institution where any person can find instruction in any study." The donor of the gateway, President A. D. White, has addressed himself to those who come to take advantage of this splendid offer. His advice, carved on a granite block set in the west side of the structure, is well suited to guide a university career and to crown its fruition:

So enter that daily thou mayest become more learned and thoughtful,

So depart that daily thou mayest become more useful to thy country and to mankind.



THE CASCADILLA BUILDING

Passing through the gate we follow the walk that borders the deep gorge of Cascadilla Stream. On our right is the massive, square Cascadilla Building, the first structure owned by the university. At the opening of the institution this build-

ing housed the registrar's and the faculty offices, in addition to providing faculty and student living rooms. For a number of years just past it had been used only as a residence hall for students and faculty. The whole interior of the building has, however, very recently been entirely remodeled and refurnished and made the first of the university dormitories for men students.

Continuing up hill we turn to the left and come then directly to the stone-arch bridge over Cascadilla Stream. One may lean far out over the parapet of this bridge and look directly down on the rushing white current of the waterfall known as the Giant's Staircase, many feet below. In its winter casement of ice, particularly when a heavy snowfall clothes in white every twig and branch of the trees that spring out from the gorge walls on either side, this fall presents an attractive sight. In summer the view down the length of the gorge, over the tops of the evergreens opens a long vista to the far western side of Cayuga Valley. This outlook is especially beautiful in the evening when the sunset colors tint the sky.

THE GIANT'S STAIRCASE—WINTER

Cascadilla Bridge is the beginning of Central Avenue. As in every great city there is an artery of traffic where the city's life pulses most actively and visibly, so, also, at Cornell we have, in Central Avenue, a similar thoroughfare. Over some portion of its length the greater part of the student body passes several times a day going to and from classes. Consequently, its blue, flag-stone pavement serves as an effective publicity medium for white-chalked announcements of undergraduate affairs. These signs are the fruit of midnight toil on the part of the student competitors for managerial positions in the various college organizations. Now it is a football game that is proclaimed, a few days later a glee club concert date and next an exhortation to subscribe for the Cornell Sun, the college daily, may appear. In the first week of the school year the avenue is a scene of feverish activity. Its whole length is dotted with student business agents. The returning undergraduates, particularly the incoming freshmen, must be cajoled or threatened into signing a contract for this, that and the other necessity. Particularly persistent are the subscription canvassers for the various undergraduate publications. There is an almost endless number of such periodicals.

A printed form is thrust at the classman and he is urged to "Subscribe for the Sun!" "You can't get along without the Sun, all the college news every morning!" He subscribes. Then he has to ward off a "Widow" man, acting and active for the humorous semi-monthly; the agent for the

Cornell Graphic, the pictorial sheet that has ousted the Cornell Era, for years the literary journal at Cornell, and other agents for the Sibley Journal and the Cornell Countryman. Perhaps even the Alumni News is sold to a freshman! On several occasions an enterprising junior has been discovered selling Official Announcements of Courses, distributed gratis by the university, to untutored freshmen at twenty-five cents the copy. Of course that is hilariously funny to every sophomore, especially if the vender is a popular athlete. Perhaps not second in aggressiveness to the publication agents, are the emissaries of the athletic office disposing of season tickets with their barking queries and commands: "Got your season ticket yet?" "Don't shortskate; buy a season ticket, good for all games!" Next comes the laundry agency solicitor, "signing up" the undergraduate wash and dispensing lettered bags. There still remain the pressing contract purveyor, who sells agreements to keep trousers creased in varying numbers and for various time periods, and a host of less ubiquitous individuals who are in pursuit of some especial quarry. Indeed the avenue is at this time the stage for a veritable running of the gauntlet by the uninitiated, especially when the victim is from necessity or habit inclined to provide his purse with secluded shelter. It is said that, when later in the year a certain freshman was approached by one of the workers of the Young Men's Christian Association with the query: "What are you doing for your immortal soul?"

he answered, unthinkingly, still on the defensive, "Oh, I've signed up with the other fellow!"

But let us continue our tour. Crossing the bridge we note on our right the Kappa Alpha fraternity house on the crest of a knoll, and directly opposite it, half hidden among tall trees is the Psi Upsilon Lodge. At the head of the first slope we catch a distant glimpse of the valley of Cayuga Lake with the broad lawn and house of the Sigma Phi fraternity as a foreground. Just across the avenue from this house is the red brick Armory, and, attached to it in the rear, the Gymnasium, where the famous Cornell oarsmen receive their early spring training on rowing machines. Both the armory and gymnasium are at present wholly inadequate to the needs of the student body, although the latter at the time of its completion was considered the best equipped college gymnasium in the country.

FRONT OF THE OLD ARMORY

Cornell owes part of its endowment to land grants made by Congress under the Morrill Act, and must, in accordance with the provisions of that act, give adequate training in military science to all but specially excepted undergraduates. Officers of the United States Army are in charge. The commandants detailed to Cornell for a number of years in the past inveighed against the insufficiency of the armory quarters for training the cadet corps. The demand for better facilities finally became so insistent that the New York State legislature was compelled to recognize the need, and, in 1914, provided for the erection of a new drill hall, completed in 1917, with four times the floor space available in the armory. This action was especially gratifying to Cornellians when, in the same year, the War Department at Washington for the first time included the university in its small list of the distinguished institutions selected from among many giving instruction in military science.

That distinction was won each year from 1919 on. There is ample evidence in the record of the Great War that the military training Cornell affords is most effective. Over three thousand Cornell graduates and undergraduates held commissions in the Army and Navy during the world conflict and among these were two generals and ten colonels. In view of the comparatively small total of living Cornell alumni, less than thirty thousand, this is a remarkable showing. Consequently it is not surprising that a completely equipped artillery unit has now been added to the corps.

In the hollow below the armory is the old university heating plant that has recently been abandoned. A great modern plant situated three-quarters of a mile distant from the Library Tower now furnishes steam heat to all the university buildings. The Totem Pole, a curious monument for this part of the world, formerly stood close by the armory. It was secured for Cornell by Professor Fernow on the occasion of the Harriman Expedition to Alaska. Such poles are similar to the coat of arms of an European family. It seems that the expedition got word of a deserted village of the Tlingit Indians, said to contain a large number of these totem poles and to be situated on Cape Fox. The professors from other universities who were members of the expedition immediately set to work to secure one of a small type of poles that the Indians kept indoors. Professor Fernow had scruples about taking the totems, moreover he was not sure that Cornell wanted one. So it was not until some of the others, working in pairs, vaunted of their prowess in getting down to the ship unusually large specimens of the indoor type, that he essayed the same task single handed. Having some knowledge of mechanics, as he modestly puts it, he easily succeeded

THE TOTEM POLE

in this, and then attempted the removal of the large, outdoor pole now on the campus. At this task the ship's company helped him at a critical moment with their tackle, else he might have been discomfited. Having to choose between the two poles, he fixed on the larger, weather-beaten one. Thus Cornell was the first university to secure a "full-grown" specimen of the Alaskan totem pole. This pole has recently been moved to the northwest corner of Hoy Field, the baseball grounds. It has also had its original coloration restored and the planting at its base is in keeping with that it had in its native setting.

Retracing our steps to Central Avenue and continuing our walk along it we pass the United States Weather Bureau kiosk where the weather prediction for the day is posted each morning, and a rain gauge, a barometer, maximum and minimum thermometers, thermograph and other weather instruments, are in operation. It is a great comfort to stop on a frosty morning and observe how low the temperature actually is, inasmuch as the weather is the great staple of conver-

THE WEATHER BUREAU KIOSK

sation on a university campus as well as elsewhere in the world.

Sage Cottage, formerly used as a women's dormitory, comes next on the left. It now houses the University Club, whose membership is made up of

CASCADILLA BRIDGE WITH UNIVERSITY CLUB IN DISTANCE

the faculty and administrative officers of the university and their wives, and, by election, other residents of Ithaca. Across the beautiful sloping lawn to the right is Sage College, one of the two large dormitories for women that the university now possesses. In the corner stone of Sage College Ezra Cornell deposited a mysterious letter, of which only he knew the contents, saying in the closing remarks of his speech at the laying of the stone: "The letter, of which I have kept no copy, will relate to future generations the cause of the failure of this experiment, if it ever does fail, as I trust God it never will." Cornell was one of the first institutions of higher learning to adopt co-education.

Opposite Sage College we come to the most attractive part of Central Avenue. Beautiful urn-form elms, in unbroken, parallel rows, completely overarch the roadway. Their graceful boughs frame a leafy vista that leads the eye inevitably to the crest of a gentle slope where the quadrangle begins. There the prospect ends, but a slight curve in the roadway brings the gray spire of the library tower into view above the tree-tops, an allurement suggesting other enchantments beyond. For the moment, however, we are satisfied with the scene that is before us. It is the one view that every amateur photographer who comes to Cornell attempts, indeed selects it usually for his first picture.

We next pass by the last remaining of a row of professors' houses. The houses at the upper end of the row were torn down in 1924 to make room for the Straight Memorial Union, in front of which we now stand.

Willard Straight, Cornell '01, directed in his will that something be done to make Cornell a more human institution. His widow, Mrs. Straight, after much study came to the conclusion that a Cornell Union would best serve the need her husband had conceived to exist. The building she has graciously provided will henceforth be the social and recreational center of the university. If Willard Straight meant, as is probable, that he wished to devise means through which the university group, undergraduates, faculty and alumni could come freely and naturally into social contact, the Union is altogether a fitting solution.

Barnes Hall

The Memorial Apse in Sage Chapel

The Library Tower at Night

The smaller women's entrance is at the lower corner. We go in through the main entrance at the upper end. On the main floor is the feature room of the Union, a combined lounge, banquet and dance hall, that is especially a memorial to Mr. Straight. Its size, its height, the dignity of its fittings and the beautiful outlooks from it across the valley all contribute to this end. Another feature of the building is the complete theatre on the lower level at the southwest corner. On this level we find also a cafeteria; on the upper floors are bed rooms for the returning alumni, private dining rooms, committee rooms and recreation rooms.

Barnes Hall across the avenue from the Union is the home of the University Christian Association. Previously to the building of the Union, Barnes Hall provided the undergraduates with as much of clubhouse facilities as its size permitted, a reading room and a "coffee house" with walls uniquely decorated being its especial features.

Just beyond Barnes Hall to the north is Sage Chapel. In its Memorial Chapel the founder of the university, Ezra Cornell, and the first president, Andrew D. White, are interred; as are also John McGraw and Jennie McGraw Fiske, his daughter, all notable benefactors of the institution. In the Sage Memorial Apse at the front of the building lie the mortal remains of Henry W. Sage, after whom the chapel is named, and whose gift it was to the university. His wife lies at his side. Around the walls of the chapel auditorium are many commemorative tablets. These, and the

memorial windows of stained glass, constitute a Cornell roll of honor, recording for posterity the noble lives and deaths of those whom Cornell is proud to honor for distinguished association with her as students, faculty or benefactors. Because of these records the chapel has been termed a Cornell Westminster Abbey and is even so revered by Cornellians.

As a whole the chapel is quite generally considered one of the most beautiful places of worship in

INTERIOR SAGE CHAPEL

America. There are but few examples of mosaic work in the United States which rival either in size or merit that which adorns the memorial apse. Painted on the brown ground of the center of each of the sloping panels of the roof of the chapel are ecclesiastical emblems on canvases of quatrefoil

shape, namely "the temple, the ship on the wave, and the ship and the pennant—all symbols of the church; the anchor which is a symbol of hope and patience; the lamb of piety and wisdom, the lamb and pennant, of the Redeemer; the cross of the redemption, the interwoven triangles of the Trinity; the lion, symbol of the Tribe of Judah, the open book with a hand pointing to the Beatitudes, a symbol of the Gospels; the sword and the palm, of martyrdom and victory; the chalice of faith; the flaming heart of fervent piety and love; the standard, the wreath and the crown, symbols of victory over evil; the sun, stars and the crescent moon, of the luminous nebula which emanates from and surrounds the Divine essence; and finally the burning bush, symbol of the religious fervor of the martyrs." The whole scheme is "rich in its suggestiveness of the centuries of Christian tradition, harmonious in its coloring and entirely appropriate in its design and execution."

Cornell students are not required to attend chapel at any time, nevertheless the building is generally crowded beyond its capacity every Sunday, and at both services; the one in the afternoon being principally musical. Before the hour of service one may often witness the curious spectacle of a large crowd of young people waiting for the doors of a church to be opened. It is sometimes impossible to secure even standing room if one comes a few minutes late. In recent years it has been found necessary to limit attendance to those holding cards of admission, which are supplied to

every student and to faculty members and, on application, are furnished in restricted numbers to others who may wish to attend. There is, of course, an adequate explanation for such congestion. It may not be ascribed altogether to the capacity of the chapel, though this would not, it is true, accommodate one half of the undergraduate body. Rather it is due to the fact that while it is hard to drive students it is easy to attract them. Cornell is non-sectarian, but far from irreligious. On each succeeding Sunday the Sage Chapel pulpit is filled by a different notable preacher representing many creeds in the course of a year. Consequently, Cornell undergraduates have had the opportunity of hearing such great men as Phillips Brooks, Henry Ward Beecher, Lyman Abbott, Edward Everett Hale, Hugh Black, Henry Van Dyke, Robert Collyer, and others of equal renown. It is no wonder, therefore, that the chapel is filled to overflowing at each service.

Emerging from the dim aisles of the chapel we find ourselves at the base of the great square tower of the University Library, in the spire of which is hung the famous Cornell chime. No words can describe the tender, eager love of every Cornellian for the music of those bells. During his undergraduate years they greet him merrily, exhilaratingly, every morning as he wends his way up the avenue to his first class. At one o'clock they peal forth again, exultingly; half the day's work is done. And then at night, old and loved, tender melodies give gracious benediction to those de-

parting from the hill. The most poignant regret of the senior, bidding good-bye at graduation time to campus scenes, is that he may no longer thrill to their notes, wafted gently afar, or pealing full and sonorous across the quadrangle. On returning from a vacation the classman feels a glow of satisfaction as once more he comes within their spell, and this is magnified into a wave of affection a thousand times greater in the breast of the alumnus revisiting Cornell, alma mater, after an absence of long years, when the bells first fully recall the many happy memories of his undergraduate life.

RINGING THE CHIME

The historical interest of the chime is as charmingly sentimental as its music. The original nine bells were presented in September, 1868, the first year of the university, by a young lady, Miss Jennie McGraw, who had become greatly interested in the new institution and had expressed a desire to President White to make some gift showing this feeling. One year later a tenth bell, a large one in the key of D, destined to become the clock bell of the university, the one on which the hours are struck, was added to the chime. This was presented by President A. D. White, on behalf of Mrs. Mary A. White, his wife, and bears her name and a

quatrain, written for the bell by James Russell Lowell, who was at that time one of the nonresident professors at the university:

I call as fly the irrevocable hours,
Futile as air or strong as fate to make
Your lives of sand or granite; awful powers,
Even as men choose, they either give or take.

One must read these lines several times over in order to get their full import and impressiveness. Then they grip the imagination by their almost fearful directness. If each student might be required to repeat them every morning as he went to his day's classes, what a force for earnestness of purpose they would exert on the undergraduate mind!

On the fortieth anniversary of the founding of the university, 1908, all but the two largest bells were recast and four new ones added. By these changes the chime has been made practically ideal for its purpose. The number and the weight of the bells, a total of over nineteen thousand pounds, is such as to allow of a great variety in programs and to insure richness of tone and great carrying power. The bells are rung by hand. The student who develops most skill in competitive trials is, as occasion arises, appointed to the position of chimemaster. In consequence of the wealth of musical ability that must be present among so large a number of young men from families of culture, as are represented in the university undergraduate community, such selection insures that the bells are always in capable hands; thus their ringing each day gives a new joy. It is worth the while of

strangers to come to Cornell if for no other purpose than to hear the chime.

There is current among the undergraduates a legend that the playing of the "Changes" at the beginning of every morning and noon ringing, Sundays excepted, was stipulated by the donor, who is also credited with the composition of the piece that, consequently, is known among the students as "The Jennie McGraw Rag." Neither presumption is correct. Years before the founding of Cornell, Andrew D. White had been struck, on hearing the ringing of the "Changes" on the bells of London on Christmas Eve, by the way they kept the air filled with music. Accordingly, with the sanction of the trustees, he formulated a rule requiring the rendition of the "Changes" at the beginning of every week-day morning and noon playing of the chime and this has been the practice from the very first days of the university.

Before continuing farther on our tour of the campus, it will be well to climb to the top of the library tower to get a view over the whole of the university domain and miles of its environment. The key to the door at the base of the tower we obtain at the treasurer's office in Morrill Hall, the next building north. We ascend the spiral staircase, and arriving, panting, at the top (the tower is nearly one hundred and seventy feet high) pause for breath, the while we peer at the ponderous mechanism of the great university clock whose four great dial-faces present themselves to each of the cardinal directions. When any two of these clock

faces, illuminated, are seen from a distance at night, the effect is curiously suggestive of the wide, unblinking eyes of a great owl solemnly watching over the seekers of learning below. The square corner of the tower and its peaked roof contribute much to this resemblance, which, in conjunction with the commanding position of the tower, is almost humorously symbolical of the university as an embodiment of wisdom.

Having satisfied our curiosity with regard to the bell-ringing keyboard we climb the last few steps of the iron stairway, finding ourselves then directly beneath the great bells of the chime. Exercise of a little agility, in squeezing through the massive framework supporting the bells, enables us to get an outlook on each side of the tower. The view in every direction is impressive. From our position at the center of the circle, we can survey in all directions an area of country swept by a seven mile radius, and some of the distant hills are fully fifteen miles removed. To the south the low sloping nose of South Hill projects itself between the Inlet Valley on the west and the Six Mile Valley nearer at hand. Directly below, Central Avenue extends ribbon-like to the tall Armory flag-pole, beyond which the avenue disappears under bordering trees. Sage Chapel, Barnes Hall and Sage College appear to be part of an architect's water-color sketch. To the west lies the town, huddled in the valley and almost hidden by trees; while the distant prospect consists of the steep slope and long extension of West Hill. East Hill comprises the

SAGE COLLEGE AND BARNES HALL
Viewed from the Library Tower

MORRILL HALL
The First Building Erected on the Quadrangle

flat and slope on which the university is situated. The flat itself falls away southward toward the Six Mile Valley but rises gently eastward as part of the broad, upper Cascadilla Valley. In the distance the Cascadilla Valley merges itself into a tumble of forest-covered hills, but nearer at hand, on the east, is the wide domain that has become the particular province of the Agricultural College of the university. The graded expanse of Alumni Field, with Bacon Hall, the baseball cage building, and Schoellkopf Memorial Training House, each occupying part of its area, is also in the scene toward the east; though this part of the view is cut off in part by the high sky-line of the roofs of the Veterinary College buildings and the huge Drill Hall. To the northeast is seen a cluster of buildings quite near at hand, of which the most prominent is Goldwin Smith Hall, which faces the quadrangle. Beyond this a great expanse of level country extends to the horizon, a region of farms pleasantly dotted with forest and field and marked here and there by a tall, isolated, green pine tree. But the view, to the north and northwest, of the unruffled reach of Cayuga Lake, shimmering blue in the sun, is the best of all. The stretch of water along the west side of the lake from the lighthouse to the point where the bend of the shore line cuts off from view its farther reach northwestward, is the course used by the long famous Cornell crews in their spring and autumn training.

Descending from the tower, after having oriented ourselves from so lordly a vantage point, we

renew our exploration of the campus with a visit to the University Library itself. On the bronze tablet set in the south wall of the outer entrance is an inscription:

THE GOOD SHE TRIED TO DO
SHALL STAND AS IF 'TWERE DONE
GOD FINISHES THE WORK
BY NOBLE SOULS BEGUN

which gives a hint of the interesting history of the structure. Miss Jennie McGraw, who gave the original chime, married Professor Willard Fiske. On her early death, in 1881, it was found that Mrs. Fiske had bequeathed a large part of her fortune to the university for the founding and endowment of a library. This will was contested and her immediate purpose was defeated when Cornell lost the suit. At this juncture Henry W. Sage, her friend, came forward with a gift that made possible both the building and endowment of the library. To this fulfillment of Mrs. Fiske's wishes, through the generosity of Mr. Sage, the inscription refers. It is worthy of mention here that the university eventually received, under the will of Professor Fiske, a sum of over one-half million dollars for the use of the library, the purpose to which his wife had intended that her fortune should be devoted.

The library itself is rich in a variety of literary, historical and art treasures and much time might be interestingly spent viewing these. The collections of illuminated medieval manuscripts, specimens of early printing and first editions of famous

books that are displayed in the Library always attract attention. The admirably arranged main reading room accommodates over two hundred students and contains a selected library of some eight thousand volumes of general interest, accessible to any one. Above the shelves hang portraits of famous lecturers and benefactors. Especially notable among these is the large portrait of the founder of the university, Ezra Cornell. In the reference room, adjacent to the reading room, are kept the encyclopedias, atlases, statistical and bibliographical volumes that afford the first clews to the facts in various fields of knowledge. The north side of the building is given over to seminary rooms, with books on special subjects, and to the housing of the White Historical Library, a wonderful collection. Many interesting volumes are on display in the show cases among its shelves and here, also, are preserved numerous significant relics connected with the history of the university. Of only secondary importance to the White Historical Library are the special Icelandic, Petrarch and Dante collections of books. In the whole library there are now over six hundred thousand volumes. Thus, with regard merely to the number of books, it is the fourth largest university library in the United States. Its relative worth may not, however, be judged by mere size. Far more important is the quality of content. In this respect the Cornell Library ranks very high. Most new purchases are made on the recommendation of the faculty experts on the various subjects. This system insures that the best of

available new and old publications, only, find a place on its shelves. Thus the library is a potent factor in securing and keeping many professors at Cornell, who, except for its scope and quality would be attracted by higher salaries to institutions where such excellent library facilities for investigation are not available. This great storehouse of human knowledge is safeguarded by fireproof stacks, constructed of glass, iron and stone. A visit to the periodical reading-room in the south basement of the building, will be well worth while to those interested in current technical literature.

Emerging from the library and continuing northward along the sidewalk we come next to Morrill, then to McGraw and then to White Hall. These are the oldest buildings on the campus, are similar in architecture and are built of local stone, quarried on the campus itself. Originally it was planned to have the university face the west, with a main highway in front and the quadrangle at the back of these first buildings. The ivy-covered walls of blue-gray stone and the uniformity of design make this row of three old buildings perhaps the most satisfying structural unit on the campus, even though foot traffic now all passes, and students enter them, at the rear.

Morrill Hall was the first university building erected on the quadrangle. It now houses the university business offices on the two lower floors. On the upper floors are laboratories and classrooms for the study of experimental psychology. These contain some interesting apparatus for determining and

McGraw Hall, Near, and White Hall, Distant, on Left

MAIN DRAFTING ROOM, COLLEGE OF ARCHITECTURE

recording sensation. In the President's office is a model of the complete scheme of the new Residential Halls, which we find to be fascinatingly beautiful and imposing even in miniature. The university Co-operative Store, familiarly the "Co-op," is located in the basement of Morrill Hall. Between Morrill and McGraw Halls is the statue of the Founder, Ezra Cornell, facing that of his coadjutor, Andrew D. White, on the opposite side of the quadrangle. Going behind the statue there is revealed a magnificent prospect of the valley which may be viewed comfortably from the seat carved in the glacial boulder that is a memorial to Professor R. S. Tarr. In McGraw Hall are housed the departments of geology and zoölogy, as well as so much of a natural history museum as Cornell possesses at present. Entering McGraw by the first door to which we come we note a huge slab of Connecticut Triassic sandstone mounted on the side wall of the hallway. This contains gigantic fossil footprints of the three-toed Dinosaur, Brontozoum giganteum, terrible, thundering, giant lizard; one of the great, biped reptiles of Mesozoic geologic time; an age the remoteness of which is measured by some millions of years. In one of the footprints may be noted the delicate mold of the scales of a ganoid fish on which the reptile trod, all those unthinkable ages ago.

The geologic lecture room is on the left at the end of the hall. Above it is the laboratory for physical geography, replete with relief models and pictures of various interesting regions of the earth's

surface. The middle entrance of McGraw opens on a stairway leading to the Museum of Natural History, also on the second floor. Here are displayed a great variety of stuffed animal forms, especially birds, also a collection of human brains and monstrosities of animal life, such as three-legged and two-headed calves. The specimen of greatest interest is an Egyptian mummy, divested of all its wrappings, enabling one to gaze upon the form and figure of a man who lived his mortal span thousands of years ago. At the north end of the museum a door opens into the zoölogy lecture room and laboratories. The geological faculty has charge of the seismograph or earthquake recording machine which is located in the basement of the south end of McGraw. An understanding of physics is required to appreciate the working of this instrument in detail, but we can see the smoke-blackened drum on which the pen traces the tremors of the rocks when an earthquake is in progress.

The lower floors of White Hall are occupied by the department of mathematics while the two upper floors are given over to the library, recreation, lecture, display and drawing rooms of the College of Architecture. At this point it may be well to clear up a possible misconception. Although the College of Architecture, as such, has only a part of White Hall for its own particular studies the teaching of its students is by no means restricted to these quarters. For instance, the architects study materials of construction with the civil engineers in Lincoln Hall, a building devoted primarily to the

engineers' work; both engineers and arts students are taught geology in McGraw, and so on. The limited funds of the university do not permit of duplication of either equipment or teaching staff for especial needs, consequently there is co-operation in teaching between all departments and colleges. Similarly, to promote efficiency and economy in university administration and instruction, the engineering colleges were combined during the academic year 1920-21 under unit management and with provision for uniform schedules for all underclassmen in these branches.

The drafting rooms that occupy the whole upper floor of White Hall interest us because of their admirable convenience of arrangement. Below these, on the third floor we find the reference library and the exhibition rooms of the college. This special library is a good place to spend a whole afternoon in a merely cursory inspection of the hundreds of finely illustrated books on architectural subjects that it contains, or in glancing over the many color and photographic reproductions of the world's masterpieces of art that are on file, as both books and reproductions are readily accessible to the visitor. Occasionally the two large exhibition rooms at the other end of the floor are used for some special display of art subjects, but we are more apt to find their walls hung with specimens of the students' own work in design, drawings from life or water-color sketches. It will be apparent from the nature of this work that the artistic studies of the architect require that there be less

formality in his instruction than is the case in other branches of learning, for there must be a certain amount of waiting for inspiration when one is engaged in creative effort. Thus the architects, while at work on some problem, commonly alternate between hours of feverish activity and periods of relaxation when ideas fail. Accordingly we need not be surprised at the sight of a small recreation room furnished with a piano, or to learn that the freshmen are required to change the needles and the records on the college victrola. In part because of such social spirit, though also because the work requires a large measure of co-operative suggestion and criticism for attainment of the best results, men of the College of Architecture have bonds of comradeship stronger than exist in any other college on the campus. The basement rooms of White Hall were formerly used as workshops and for the storage of tools and supplies by the plumbers and electricians employed by the university. But pressure for space when the department of landscape art was transferred from the College of Agriculture to that of Architecture made it necessary to convert the basement work rooms into class rooms. These quarters are cramped and none too well lighted, but are not unattractive as remodelled. The architects, and their associates in landscape art and fine arts, are planning for a building adequate to their needs which they hope to see erected on the site between Sage College and Stimson Hall.

Judging from what we have already encountered it is quite evident that, while college buildings

are not primarily museums, each one nevertheless has a new variety of interesting content. Therefore we feel that every one of those still awaiting us has possibilities and must not be passed by without at least inquiring as to its use. Thus, Franklin Hall, named after the first American electrician, as we are informed by the medallion portrait and inscription over the door, is an especial province of the department of electrical engineering. In the basement of this building are laboratories for research experimentation with electrical machinery, on the floors above lecture and drawing rooms. The top floor, however, provides studios for the free hand drawing, life and modeling classes of the architects. We find ourselves in typical artists' quarters when we enter these rooms. Easels, curtain partitions, a great collection of casts from the best periods of the sculptor's art, unfinished and finished work, both drawings and paintings; all contribute to the ensemble. It would seem that the Cornell architects working in these studios and living amidst the varied natural beauty of the university's site must be keyed up continually to a fine frenzy of inspiration.

Franklin Hall is the second from the west of the row of buildings that marks off the northern end of the quadrangle. While walking along its front toward the building at the west end of the row, Morse Hall, we should devote at least passing notice to the medallion portraits of famous electricians and physicists that are set in its walls. Only a few steps carry us from Franklin Hall to the

front entrance of what remains of Morse Hall, where all branches of chemistry were formerly taught. On February 13, 1916, practically the whole interior of Morse Hall was destroyed by fire. What remains of the structure is being used for store rooms and as an office and class rooms by the professor of music.

But we may next, quite appropriately, go east across the north end of the quadrangle and visit the Baker Laboratory of Chemistry that replaces Morse Hall and was first used in 1923–'24. This new laboratory occupies the commanding site above East Avenue where President Schurman's house formerly stood. It is an imposing square structure with walls of local sandstone. The masonry courses are laid to show to best advantage the coloring and the smooth natural faces of the weathered joint planes that are a characteristic geological feature of the rock in the Ithaca region. The effect is altogether pleasing, and is similar to that achieved in the Drill Hall, the new Residential Halls and the Straight Memorial Union by use of the same material. The new laboratory is the gift of George Fisher Baker of New York. It cost one and a half million dollars to erect and equip. It was the donor's wish that excellence and completeness of equipment should be the special end to be striven after in planning the building. This objective appears to have been very fully realized.

It would require much space of printed page to enumerate, only, the many separate laboratories, lecture and balance rooms the building contains.

Franklin Hall

ITHACA AND THE PANORAMA OF THE HILLS
As Seen from the Campus

In some of the larger laboratories, where the elementary classes are taught, as many as three hundred students can be accommodated readily at one time. In some of the smaller laboratories for special kinds of investigation, into which we peer, are mysterious pieces of apparatus that we may not even pretend to understand. The one for chemical microscopy is especially enticing. We get a sense of the completeness and adequateness of the building on viewing the large special library, the museum, and the main lecture room that seats five hundred. We also come to the conclusion that the design and fitting of a building for chemical investigation is a vast problem. Behind the lecture desk is a veritable battery of stop cocks for supplying different gases, as well as a maze of switches connecting with electrical currents of varying intensity. Thus practically any kind of chemical experiment can be demonstrated before a large class. The lectures in elementary chemistry often have both a popular and spectacular interest. Visitors are privileged to attend single lectures in most university courses. They should enter the lecture room before ten minutes after the even hour in order to avoid disturbing a class in session.

It must be admitted, notwithstanding the varied and interesting content, that outdoors is sweeter than a chemistry laboratory, especially when a view is to be had such as is spread before us now as we return to the site of Morse Hall and stand at the edge of the terrace level on which the quadrangle is situated. The steep slope of a de-

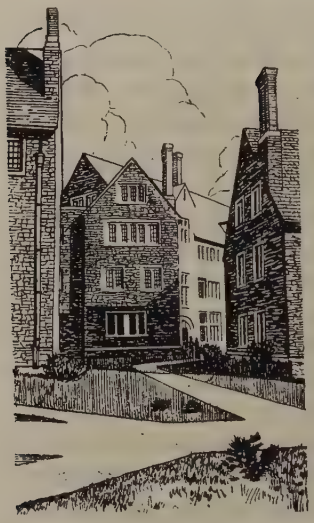
scent just beyond enables us to overlook miles of country both to the south and west from our viewpoint on the entrance steps. Below is spread the wide floor of the upper end of Cayuga Valley; the church spires and tops of the taller buildings of the city of Ithaca, well named the Forest City, just peep above the sea of trees that covers nearly all of its expanse. In the farther distance we look up the narrower Inlet Valley. The lines of the hills, in wide perspective, carry our vision to the far limit of the horizon from the west around to the south.

Every part of the broad panorama is beautiful. The gentler slopes of the hills are marked off in broad acres of farmland, each different crop having its own peculiar tint of yellow or green. Dark lines of woodlands locate the courses of the smaller tributary streams that flow to the larger valley at our feet. As the cloud forms in procession hurry past the sun, already west of the meridian, the purple shadows, endlessly changing, move majestically across the landscape completing one picture while making another. It is an outlook that never tires, while stirring within us a vague desire to wander over the slopes of the hills and to seek out their far distant notches to see what lies beyond.

Such is the scene that will always greet the eyes of the students who are housed in the new men's dormitories that now, in part completed, occupy the slope just below us. So fortunate a site on which to build residential halls is rarely found. The great field which is a part of the campus, is of ample area for the buildings. The descent of some

sixty-five feet in its width, while making the architectural problem difficult, insured that its solution would be picturesque. The halls, Baker Tower, North and South Baker Halls and Founders' Hall, and others already done, and the connecting steps are built of local stone which brings them into harmony with the three older university buildings on the level above. Altogether the scheme is most commendable. The need of such residential halls at Cornell is acute. Of nearly five thousand students who are now attending Cornell about fifteen hundred live in fraternity houses, over three thousand others must shift as best they can in private rooming and boarding-houses. In the spring of 1914 the gift from George F. Baker of one hundred thousand dollars for the erection of the first of these new residential halls was announced; further gifts of this generous donor and alumni funds have provided for the buildings now existing. Gifts for several more have already been made by other donors. The architects say that no college possesses a more stimulating opportunity for obtaining beautiful architectural results, and that this residential tract promises to become one of the most distinguished scholastic groups in the United States.

ENTRANCE, BAKER TOWER



IN BAKER COURT

On the terrace level to the west and below Morse Hall the Chi Psi Fraternity House rises from the site of the famous McGraw-Fiske Mansion which was destroyed by fire on December 7, 1906. The present building is a handsome structure. Moreover its lines and general contour are reminiscent of its predecessor, but both in imposing exterior and beauty of interior it falls far short of the original mansion which cost approximately two hundred and fifty thousand dollars. This was built in 1879-80 for Mrs. Jennie McGraw Fiske who died in 1881 without having occupied the house. Until 1896 the building remained untenanted. Then it came into the possession of the Chi Psi fraternity and was occupied by the members of that organization at the time of the fire. The original mansion was modeled after a famous French chateau near Blois. To give some idea of the thought and money lavished on its construction it may be noted that the carved woodwork interiors were imported from Italy and that mosaic workers, the most skilful to be had, were brought from Rome and Venice to give the best expression of their art to its completed

Photo © Troy

BAKER TOWER AND THE RESIDENTIAL HALLS

THE FRONT OF SIBLEY COLLEGE—WHITE HALL AT THE LEFT

decoration. To native Ithacans the mansion was always a wonder place and its prominent position made it a conspicuous landmark for many years.

We now retrace our steps past Morse and Franklin Halls and continue east along the front of the main building of Sibley College of Mechanical Engineering and the Mechanic Arts. We find only a monotonous repetition of drafting and recitation rooms in the west and east wings of the building but under its central dome is the Sibley Auditorium and, on the floor below the Auditorium, a lounging and reading room for the Sibley students with the Sibley special reference library adjacent. But the thing for us to see is the little mechanism in the glass case on the northwest wall of the reading room. It is the original telegraph instrument used in sending the first telegraphic message: "What Hath God Wrought?" from Baltimore to Washington. The practical success of this invention was due largely to Ezra Cornell's scheme for stringing the wires on poles after the original attempt to lay underground cables had failed because of defective insulation. Its financial success, also, was assured eventually through the establishment of the Western Union Telegraph Company for the organized use of the invention. In this enterprise Ezra Cornell amassed his fortune, the money that subsequently made possible the founding of Cornell University. This happy outcome of one invention is in distinct contrast with the tragic failure of another, of which the elaborate mechanism that stands in the obscurity of the

opposite corner of the room from the telegraph instrument is a monument. It is a machine for setting type, marvelously intricate and complicated in design, probably mechanically inefficient but excellent in its detailed workmanship. It was destined to failure at the moment of its first completion because at the same time the much simpler type-casting machines, now so generally used, came on the market. A large part of Mark Twain's fortune is said to have been lost in the development of the ponderous ingenuity we here see relegated to a dusty corner, and no doubt the whole life work of its inventor as well.

Next to the east of the main building of Sibley College we come to Rand Hall, planned to be the first of a group that is to extend westward in a row replacing the old shops, for Sibley, like other colleges of the university, has outlived its earlier accommodations. Rand Hall is a modern shop building. its walls are little more than frames for huge areas of window glass. Instead of being dark and smelly, as factories have been in the past, its interior is always flooded by light and air. In this respect, therefore, Rand Hall, Mrs. Florence Osgood Rand Lang's gift in 1911, is in sharp contrast with the older Sibley shops that we will visit next. The first floor of Rand is occupied by the machine shop, the second floor is replete with dynamos, rheostats and transformers; it is the main laboratory of the electrical engineers. On the third floor is the wood shop, where all kinds of woodworking are taught. In the machine shop is a motto board,

quoting Robert Stevenson, which gives the keynote of the kind of training that Sibley stands for: "It is necessary to educate an engineer in the work shop. That is the education emphatically, which is calculated to render the engineer most intelligent, most useful and fullest of resources in times of difficulty." It is interesting to know that in the machine shop of Sibley, the college undergraduate gets equivalent practical experience in almost as few hours as it requires months on the part of the apprentice in the industrial world.

Across the roadway behind Rand Hall is a small frame building in which practice in foundry and forge work is given. All such classes develop sureness of eye and hand. It is amusing to see the Sibley students at the end of a term lugging huge iron log chains to their rooms, so proud are they of their handicraft. But in the experimental engineering laboratories, just opposite the forge room, tests are given that require the application of intelligence more than muscle. The experiments assigned demand a broad basic knowledge of mathematics, physics and chemistry for their acceptable performance. Accordingly such experiments are deferred until the junior and senior years. As we pass through the connecting rooms on the lower floors of the two long shop buildings, going from east to west, we meet successively with apparatus for experimentation on the fatigue strength of metals, by bending a bar back and forth hundreds and thousands of times until it finally breaks; great machines to test the compressional and tensional

strength of different materials; a room full of small engines for trying out various valve settings; another with air compressors; then a gas engine laboratory; next to that a series of large Corliss steam engines and apparatus for determining their power, and, in the end room on the west, a large refrigerating machine. On the upper floor is a fuel testing laboratory and in the basement apparatus for measuring the flow of water through weirs and nozzles. Between the main building of Sibley in front, and the shops to the rear is a large boiler plant used for supplying steam to run the various engines and machines as well as for tests on the efficiency of boilers. From all this it will appear that a Sibley student must needs acquire quite a lot of practical experience before securing a diploma.

THE SUSPENSION BRIDGE OVER FALL CREEK

Passing out of the experimental laboratories we get some fresh air, and a new and exceptionally good view of Cayuga Lake, before descending the

cinder path to the suspension foot-bridge across the Fall Creek Gorge that yawns before us. Standing on the swinging bridge we get an adequate conception of the imposing proportions of this chasm from the free view up and down its length that this position affords. Up-stream from the bridge, over a hundred feet below us, is the swimming pool much resorted to by both men and women students on warm spring afternoons and during the hot days of the summer session, when it is especially popular. On the floor of the gorge beside the curved waterfall is the university power plant. This and the swimming pool we attain by a path descending to stairs on the far side of the gorge and find water wheels and generators capable of developing over one thousand horse power. As the water supply is not adequate to develop so much energy at all seasons the authorities are at present planning to build a great storage reservoir a number of miles up-stream.

While standing on the foot-bridge we noted a great square tower of red brick, rising, castle-like above the trees on the far side of the head of the gorge. That is the topmost part of Prudence Risley Hall, the new dormitory for women students, recently completed at a cost of three hundred

THE CASTLE-LIKE PROPORTIONS OF RISLEY HALL

thousand dollars; the gift of Mrs. Russell Sage. We approach it from the rear, following the roadway that runs parallel to the gorge; and note with pleasure the effective architecture of the structure as presented from this view point with the dining-hall in the foreground. Passing around to the front we find the sweep of its concave arc equally imposing. On entering and inspecting its inviting halls and the beautifully decorated dining-hall interior, we feel that the women students are certainly pleasantly housed in this building. The specifications for this new dormitory called for sunlight in every room and this has been achieved. It was planned to have the senior women students and sophomores, sister classes, occupy Prudence Risley Hall, while juniors and freshmen were to reside in Sage College dormitory. This plan would operate to prevent the development of any feeling of superiority on the part of those who might otherwise be permanently established in the more modern dormitory. But as Sage College and Prudence Risley Hall together are inadequate for housing even a majority of the women students, plans are being made for the erection of other dormitories and sorority houses on the university acres lying north of Beebe Lake and opposite Prudence Risley Hall, a pleasing and secluded site on the east end of which the new Astronomical Observatory stands.

Prudence Risley dormitory marks the beginning of an extension of the campus beyond the north and south confines previously marked off by Cascadilla Creek and Fall Creek. Turning south-

Sibley Dome

Rand Hall

Students at Work in the Sibley Machine Shop

ward toward this main area of the university domain we recross Fall Creek on the iron arch bridge that spans it at a point where the gorge is very deep. Looking up stream we see Triphammer Falls, and, to the right of it, the Hydraulic Laboratory of the Civil Engineers. With reference to tests on the flow of water under pressure head this laboratory is unique among similar ones at other engineering colleges because of the great fall that is available. As a consequence researches having a very important bearing on hydro-electric power engineering have been conducted here.

TRIPHAMMER FALLS AND THE HYDRAULIC LABORATORY

Above the pretty, step-cascades of Triphammer Falls a concrete dam holds back the placid expanse of water that forms Beebe Lake. This lake is another of the blessings of university life at Cornell

as it affords a most convenient center for skating and tobogganing in winter. Its practical utility as a power water reservoir is thus supplemented by service as handmaiden to sport. Lying in a sheltered amphitheatre between steep hills it freezes over readily and smoothly after the first few days of winter cold and usually remains ice-covered for several months. Its expanse is amply sufficient to accommodate hundreds of skaters besides providing room for a hockey rink on which the university team plays its home games. A season ticket arrangement provides funds for keeping the surface clear of snow and for the labor incidental to icing the long slope of the steel toboggan slide that descends from above the hill on the south side of the lake.

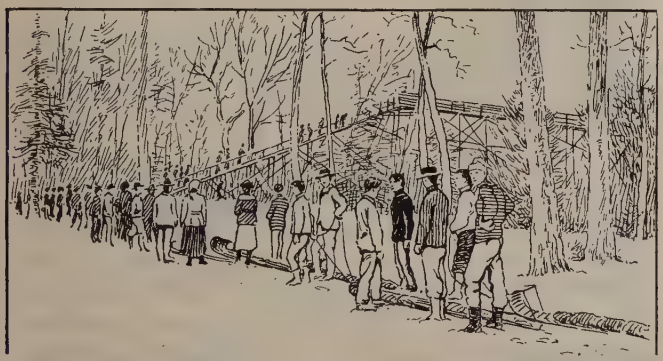
In January, 1923, a winter sports house, "The Johnny Parson Club," was opened. This is an attractive stucco building located on the north shore of Beebe in which, on the entrance level, is provided a restaurant seating ninety persons, and below, at the lake level, a warming room that will accommodate about two hundred skaters.

On Saturday afternoons in winter, if skating is good, and the weather just a wee bit mild and sunshiny, one is always sure of finding a great crowd assembled at Beebe. The graceful evolutions of the skaters furnish a pretty sight, one that invites even the most sluggish soul to participation. But first and foremost of the winter joys at Beebe is the toboggan slide. The slide at Cornell differs from those in many other places in that it

THE SWEEP OF THE CONCAVE FRONT OF RISLEY HALL

A Bright Winter Day

is not banked for the length of the course. On leaving the incline, the toboggans shoot out upon the level expanse of the lake ice, and, if the conditions are favorable, have acquired momentum enough to carry them across it to the far shore. It is, therefore, incumbent on the steersman, perched precariously in the rear, to keep the flying machine



THE WAITING LINE AT THE TOBOGGAN SLIDE

headed true and straight on its course, else an upset is certain. The steersman's whole body often extends at arm's length behind the toboggan, like a rudder on an airship. Only his shoe tips scrape along the ice as he swings from side to side. Such steering is an art not learned in a first attempt. Consequently one often sees a toboggan swing sideways into the snow. Then a grand spill occurs, man and maid, indiscriminately, turn summersaults; a sight which affords unlimited amusement to an ever present crowd of spectators. Skiing on the hills affords the most exciting of all the winter

sports. Although the feats of Cornellians who indulge in it do not rival those of the Scandinavians, still the ski runners who come hurtling down the long hill slopes at the east end of Beebe, or down

A TOBOGGAN SPILL

the less steep inclines to the west of Central Avenue are always sure of a gallery, though this is apt to applaud their tumbles more vociferously than the flying leaps they accomplish successfully.

It is difficult for me to refrain from expatiating, continually, while we are on this tour, about the diverse exceptional advantages of environment that Cornell enjoys. We have, to be sure, ourselves been engaged in appraising both buildings and location. In the halls we have found every inducement and facility for the acquisition of learning; in the open a wealth of inspiration afforded by the broad free outlook over hill and dale and lake. But one feels impelled constantly to break away

from the detail of the inventory and to enlarge on the luxury of the whole. Where else, pray, may there be found a plateau with its summit crowned by a score and more of pleasing buildings, whose interiors are crowded with treasures of books, specimens and mechanisms, and of which the single structures are attractively grouped and set about a campus and quadrangle dotted by noble trees in groves and avenues? At every turn the structures and trees frame and furnish the content of a beautiful landscape picture. This picture changes with the seasons, thus adding the charm of variety to its fascination. Where else can one find a campus bounded by profound chasms that impress one by their immensity with the greatness of the works of nature, and are decorated in their length with a hundred waterfalls large and small? The beauty of these gorges robs the senses of any feeling that hurt has been done to the bosom of Mother Earth by the opening of such great rents. What pleasure to lift the eyes and sweep a horizon enclosing long hill slopes and deep valley furrows, forest and farm in unending succession; a town, the busy habitat of man; and the solitary ribbon of blue lake waters continuing many miles and lost to sight only in the distance? Where else a university home providing the outlook and the invitation to recreation of a summer playground: tramping, fishing, riding and sailing; and in winter giving such convenient opportunity for that season's brightest sports and exercise as Beebe Lake and its domain afford? And with that the half has not been said. For,

while the buildings on the campus provide place for acquiring the culture of books, experiment and specimen; and the outdoors inspiration for the mind and invitation to bodily activity; this outdoors is but a wider campus, a wonderfully rich university of natural history abounding in phenomena of biological, geological and geographical interest of such variety as to have invited the enthusiastic comment of celebrated scientists from the time of the first founding of Cornell up to the present. Now, perhaps, we can grasp something of the full fitness of Cornell. Rich in man-made and man-gathered equipment for learning, located where nature has provided inspiration for the poet, beauty for the artist, problems in power and transportation engineering, a rich field for collecting and study by the naturalist, withal insistent invitation to healthy outdoor recreation by the whole university community, such is Cornell.

* * * * * * * * * *

On the bright morning of a new day we recommence our inventorial tour with fresh zest and vim. The sun shines clear, the air is a sparkling tonic. Yet it must be confessed that while such days are not infrequent at Cornell, they often fail to come as often and in as unbroken succession as Cornellians would wish. The climate of the Cornell region is not all that might be desired. Perhaps there will be some among the university community who will feel that you should not have been told this, but if you are expected to enthuse un-

reservedly with me about the many happy circumstances that form the Cornell environment, your confidence must not be that of a fair weather friend. The Cornell region lies in the average storm track of the west wind belt. As a result practically every weather disturbance that crosses the United States from the west is felt in this region. Overcast skies are common, we normally have frequent rains and usually much snow. Unfortunately too, the university session beginning with fall and extending through winter and spring comes in the eight months of the year that include both the disagreeable transition seasons. Summer is usually delightful throughout, so is early fall and late spring. But in late fall and early spring, weeks pass with murky sky overhead and mire underfoot. Yet this only makes Cornellians appreciate more the balmy days of later spring when the fresh green leaves peep forth from the swelling buds of the elms and the scent of myriad lilac bushes perfumes the air. Cornellians are equally sensible of the mad invigoration of the Indian summertime when the landscape is a riot of red and yellow color. To be sure there is a small quality of mildness in the Cornell winter. One realizes then, as seldom in the other seasons, that the campus is a hilltop, consequently gets the weather—all there is of it. Fiercely buffeting winds, whistling around corners of buildings and bringing with them blinding flurries of snow that pile up in drifts across the walks, are typical of winter days. But bright and balmy sunshiny days come between. After all the little

tempers of the winter weather are of minor import, they only bother when one needs to get up unpleasantly early to make an eight o'clock class.

The iron bridge, from which we viewed Beebe Lake, carries the roadway that is the continuation northward and westward of East Avenue. East Avenue itself extends southward parallel to the east side of the quadrangle in the rear of Lincoln and Goldwin Smith Halls. Lincoln Hall, at the northeast corner of the quadrangle houses the College of Civil Engineering. The building is very pleasantly ensconced behind a clump of oak trees that undoubtedly constitutes the most artistic single feature of the quadrangle, and is said to mark the site and to have been the ornament of the Johnson homestead, a log cabin that was probably the first white man's house to be erected on the quadrangle. The many-gabled roof and ivy-covered red sandstone walls of the structure add not a little to the picturesqueness of this corner. While the upper three floors of Lincoln Hall contain drawing and recitation rooms quite similar to those we have met with in other buildings, there is on the first floor, at the north end, a museum of instruments and models of structural units related to civil engineering activities that are worthy of inspection. Among those objects a relief model of the campus, showing the contour of the land and all the buildings as they existed in 1895, is especially pertinent for comparison with conditions as we find them today. In the basement below the museum is a laboratory, for testing the

strength of structural materials, that contains some curious machines. Of these one, a compression-strength-testing device, is such a giant as to project up through the first floor as though it were a great whale come to the sea surface to breathe.

Goldwin Smith Hall of Humanities, to which we come next, has long been in our eyes, as it is easily the most imposing edifice on the quadrangle. Its only possible rivals on the campus are the University Library with its tower, the Baker Laboratory of Chemistry and the Bailey Auditorium of the Agricultural College. The acceptability of Goldwin Smith Hall from an architectural viewpoint must be a matter for the individual taste of the critic. It does photograph well and there can be no doubt but that the massive columns of the portal give the building distinction and a classic flavor that reflect the kind of studies sheltered under its roof. A sense of solidity and permanence is further conveyed by the square-hewn and large-block masonry. Every feature of the building may therefore be thought of as symbolizing the traditional and fundamental importance of the study of Greek and Latin, of philosophy and history. With the furtherance of these studies at Cornell the name of Goldwin Smith, historian and publicist, must always be intimately associated. In the early years of the university he was its most distinguished professor of history; his wife contributed generously to the erection of the building and he gave his own fortune to endow the chairs of the liberal studies now taught in its halls. These

things are all set forth on the bronze tablet in the entrance hall inscribed, by direction of the university authorities, with an extract from Goldwin Smith's will as follows:

ALL THE REST AND RESIDUE OF MY ESTATE I GIVE, DEVISE AND BEQUEATH TO CORNELL UNIVERSITY IN THE STATE OF NEW YORK, UNITED STATES OF AMERICA, ABSOLUTELY TO BE USED BY THE BOARD OF TRUSTEES FOR THE PROMOTION ESPECIALLY OF LIBERAL STUDIES, LANGUAGES, ANCIENT AND MODERN, LITERATURE, PHILOSOPHY, HISTORY AND POLITICAL SCIENCE, FOR WHICH PROVISION HAS BEEN MADE IN THE NEW HALL WHICH BEARS MY NAME AND TO THE BUILDING OF WHICH MY WIFE HAS CONTRIBUTED

IN CONFIRMING THIS BEQUEST MY DESIRE IS TO SHOW MY ATTACHMENT TO THE UNIVERSITY IN THE FOUNDATION OF WHICH I HAD THE HONOUR OF TAKING PART, TO PAY RESPECT TO THE MEMORY OF EZRA CORNELL, AND TO SHOW MY ATTACHMENT AS AN ENGLISHMAN TO THE UNION OF THE TWO BRANCHES OF OUR RACE ON THIS CONTINENT WITH EACH OTHER AND WITH THEIR COMMON MOTHER

Goldwin Smith

Mounted on pedestals that stand in alcoves to the left and right of the inscription are sculptured portrait busts of the benefactor and his wife. These serve to familiarize the hundreds of students who come to classes in this building with the features of its patrons. Other inscriptions in Latin and English, over the portals leading to the basement rooms from the lower hallway, tell of Goldwin Smith's active connection with Cornell University as resident professor of English history, 1868-72, and of his life and work.

In the basement rooms under the front of the building we find the Museum of Classical Archæology. This consists, principally, of a collection of nearly five hundred full-size plaster casts of notable examples of Greek and Roman bronzes and marbles. These casts, for the most part, were made to order under the direction of the foreign museums possessing the originals. The collection is intended to furnish the best possible illustration of the development of ancient sculpture, and, as a museum of classical sculpture, is said to be excelled in the United States only by that of the Museum of Fine Arts in Boston. Wandering from one to the next of these many faithful replicas of what was most beautiful and imposing in ancient art, even the uninitiated sightseer, unfamiliar with the myths and legendary lore of Greece and Rome, must experience thrills of pleasure at the satisfying perfection and graceful postures of the human form as variously and fascinatingly manifest in these portrayals. We find old favorites in the collection,

also rarer pieces of which we do not know the names, still less the history. The guide-book which the curator kindly furnishes, has, consequently, been quite thoroughly conned when we are ready to depart.

The main floors of Goldwin Smith Hall are divided chiefly into lecture halls, rooms for recitation classes and faculty offices, and each one of its kind has a modern and inviting aspect. They are attractive and usable rooms without being ornate. In addition to large lecture halls at the north and south ends of the first floor of the building, there is a quite capacious, amphitheatre lecture hall, provided with an ample stage; this occupies an extension eastward from the central part of the main building. This hall is much used for presentation of one act plays by the Dramatic Club and as a rostrum for visiting lecturers. Many distinguished personages each academic year use its platform for an address or a series of discourses. Such lectures are generally supported by endowments; that provided by Mr. Jacob H. Schiff for the foundation bearing his name, and further entitled "Human Civilization," being noteworthy because the income from it is sufficiently large to permit the calling of eminent speakers from overseas. On the second floor of Goldwin Smith Hall are offices and an educational museum, a rather inadequate exhibit, while the third floor is fitted up as a reading room with open shelves holding a good reference library of volumes pertaining to the subjects taught in the Hall. On leaving the building by the

south entrance our attention is attracted by the large oil painting by I. Gari Melchers, that hangs on the sidewall. Its convincing realism makes this picture a fitting nucleus for the future art collection of Cornell, where search for eternal verities, even their minutæ, should never flag.

Emerging from the south entrance of Goldwin Smith Hall we come directly into an ornate marble exedra, the setting for a stone table surmounted by a bronze sun-dial, the latter very appropriately inscribed "As a Shadow Such is Life."

THE EXEDRA, GOLDWIN SMITH HALL

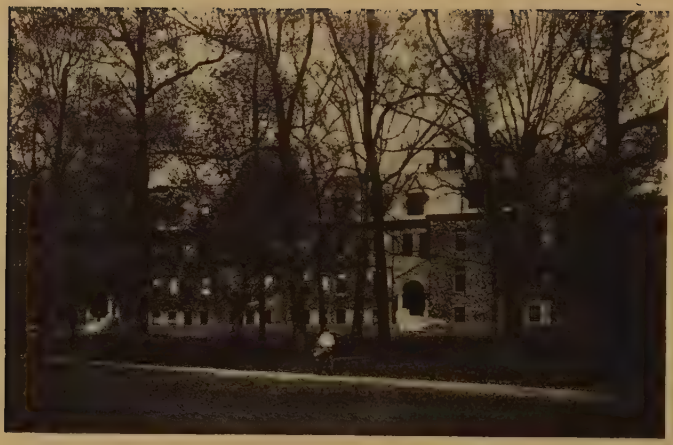
A little stone bench inscribed: "Above All Nations is Humanity," which stands infront of the building, is Goldwin Smith's own campus memorial. This was carved by some English students who came to Cornell at Goldwin Smith's suggestion.

The south side of the quadrangle is marked off by three buildings, Stimson Hall just opposite us, Boardman Hall its neighbor on the right and the University Library which we have visited. In Stimson Hall is located the Ithaca division of the Cornell University Medical College. The major

equipment of this college is situated in New York City, in touch with ample hospital facilities and clinical opportunities. Only the first year's instruction in medicine is, therefore, given at Ithaca. The Cornell Medical College is a graduate school. To become a candidate for its M. D. degree a student must have previously had an A. B. degree conferred upon him, or have successfully pursued studies substantially equivalent to such attainment. On account of such very high entrance requirements, the enrollment in the Ithaca division of the Medical College is small as compared with that of the other major divisions of the university. Nevertheless a full staff of instructors is maintained for the first year's subjects, consequently the medical student at Ithaca is insured personal tutoring almost by men of professorial rank; certainly a rare privilege.

Entering the building we are impressed by a spick and span cleanliness of its halls and walls that is in happy accord with the ideals of modern medicine in its fight against filth as the fostering refuge and distributing medium of disease producing bacteria. At the east end of the structure is a typical medical amphitheatre with seats in steep tiers so that the topmost spectator can look directly down on the work of the demonstrating operator, accordingly be able to watch his procedure with a facility nearly equal to that of the student close beside the instructor. This amphitheatre extends through the basement floor to the main floor above. Cold storage and embalming equipment in the

A Snow-Banked Path on the Quadrangle



Lincoln Hall

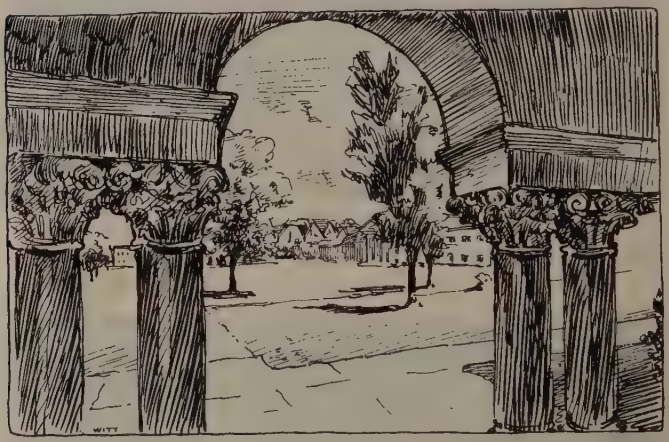
The Museum of Classical Archaeology

basement make possible the preservation of a large number of cadavers for the use of the anatomy classes; which have large, well-lighted, dissecting rooms on the third floor. These rooms are not open to visitors except by special permission from the director, granted only when some reason or interest other than normal curiosity can be given. The second floor laboratories are, however, open to all, and while not so gruesome in aspect as the dissecting rooms, are nevertheless equipped with weird enough complications of apparatus to convince the laity that modern medicine has at least the setting of the traditional occult.

The appropriateness of the name Morrill Hall, after Justin Smith Morrill, author of the Land Grant Act, applied to the first building erected on the campus; of the names White Hall and McGraw Hall, Morse, Franklin, Sibley, Lincoln and Goldwin Smith Halls, is quite obvious to any one at all familiar with Cornell and national history. The derivation of the names Stimson Hall and Boardman Hall is not quite so obvious. Thus Stimson Hall was named, at the request of Dean Sage, the donor of the building, after Dr. Lewis A. Stimson, professor of Surgery at Cornell University, as a recognition of Dr. Stimson's influence in securing the establishment of the major part of the Medical College, located in New York City. Boardman Hall, similarly, is named after a member of the faculty, Judge Douglass Boardman, the first Dean of the College of Law.

The lower floor of Boardman Hall is wholly

given over to lecture halls, two large ones at either end of the building and a smaller one in the middle. On the walls of these rooms is hung a quite notable gallery of small portraits of English and American lawyers and judges, many of them autographed, while the stairway is adorned by a large oil painting of Ezra Cornell. On the second floor are the



FROM THE ENTRANCE PORCH OF BOARDMAN HALL

offices of the dean and the several professors. The whole of the third floor is occupied by the law library and reading rooms; the open shelves of the former have accommodations for over sixty thousand volumes and there is space for three hundred readers. The library at present consists of some fifty-four thousand volumes and is a quite notable, and in some respects unique, collection. The nucleus on which it has been built was the well-known

The Portals of Goldwin Smith Hall

Photo © Troy

THE LIBRARY, BOARDMAN HALL AND STIMSON HALL
In Line Across the Center of the Picture

collection of Nathaniel G. Moak presented to the College in 1893 by Mrs. A. M. Boardman and Mrs. Ellen D. Williams as a memorial to Judge Douglass Boardman. The library at present ranks after the Harvard Law Library as an all round collection, but is probably second to none in the completeness of its set of law reports of Great Britain, British Colonies and British dependencies, no better existing even in England. In the Cornell College of Law instruction is given not only in the principles of substantive law but also in the principles of pleading and in the general and fundamental rules of practice. Thus, while its graduates need actual experience to become masters of the details of practice, they are so well grounded in the general rules as to become proficient speedily in the art of procedure.

In making the round of the inner quadrangle, complete here at Boardman, we have walked nearly three-fourths of a mile, as a glance at the map will prove. Our visits to classrooms, laboratories and lecture-halls in the buildings would easily make up the full mile. It is a half mile from Central Avenue stone-arch bridge to the front of Franklin Hall. These figures help to a realization of the actual dimensions of the campus. They are the more significant when it is noted that our trip thus far has covered only about one-half of the campus area actually occupied by buildings. What we have seen may well be termed the old campus, though it includes several new buildings within its precincts. But a new campus, as extensive or more

so than the old, has grown up practically within the last decade. It lies to the east of the earlier domain and is, in fact, still in active process of development. Toward it we may next turn our steps.

Crossing East Avenue at the end of President's Avenue (which extends parallel to the lengths of Stimson and Boardman Halls) we find ourselves in front of the President's Residence, erected and presented to the university by A. D. White, first president of Cornell. It is now occupied by Dr. Livingston Farrand, the fourth regularly inaugurated president of the institution. The parallel rows of elms that border each side of President's Avenue and extend northward along East Avenue to the number of seventy-two trees are the memorial of the Class of 1872, the first class to be graduated from Cornell in the full four years' course and it is to this fact that the little marker stone set at the end of the avenue, with its inscription: "Prima Interpares," first among equals, refers.

Turning to the north and then following the cement walk up the slope to the right, brings us to the south, main entrance of Rockefeller Hall, the home of the department of physics. This building is the outpost of the new campus and in a sense marks the general characteristics of all the structures that stand on this extension of the academic domain. Its architectural outline and mass as well as its structural shell, have been made subservient to utility and economy. The walls are

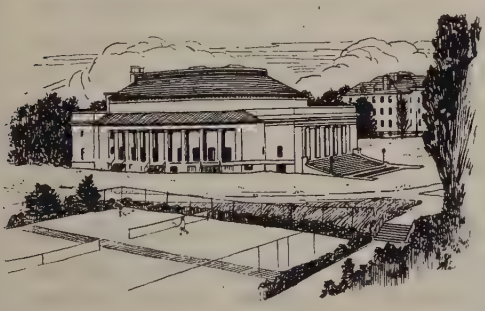
of brick and the dominant idea of its plan was to provide as great and varied facilities for teaching and research in physics as possible with the sum of money available for its building and equipment. While the building has a pleasing, substantial exterior, only an examination of its interior arrangement and equipment can make fully evident how well the physics faculty knew just what they wanted and how much of it could be got with Mr. John D. Rockefeller's gift of two hundred and fifty thousand dollars. As Mr. Rockefeller stipulated further that the sum of one hundred thousand dollars be set aside by the university authorities to provide an income for the maintenance of the building, it would seem that quite adequate provision has been made for the subject of physics at Cornell.

In the south wing of Rockefeller are large lecture halls, one seating six hundred, the other two hundred students, each fitted with a multiplicity of conveniences for demonstration experiments in mechanics, heat, light, sound and electricity; the lecture desks surpassing those of chemistry in the intricacy and variety of their stop-cock and electrical connections. These include a switch, connected with a lifting apparatus and shutters, for darkening the room in a few seconds when it is necessary to use the stereopticon lantern. Between these lecture rooms are apparatus-rooms crowded to capacity with complicated devices, each one a marvel of mechanical execution, in whose construction the ingenuity of master minds is written quite as legibly as if set forth in print. In the basement

below are research laboratories, with massive concrete foundations to insure freedom from vibrations; a mechanician's work shop and, under the north wing, a quite complete plant for the liquefaction of air, also a small ice-making machine. On the main floor of the north wing is the dynamo laboratory, a jungle of wires and switchboards, interspersed with the black, squat forms of the generators. Into this room it is not safe to venture without a guide. At the north end of the main building are other electrical laboratories while the main corridor of the first floor is flanked by offices and reading rooms. On the second floor are the laboratories in which the large classes in general physics conduct a variety of elementary experiments. These present an interesting sight when the classes are at work, the students singly, or in pairs, or in groups of three or four, each intently engaged in some manipulation having for its purpose the securing and setting down of data for future computations. Here, again, shrewd planning is in evidence to have all this work go on at the same time in orderly fashion. Similarly well arranged are the photographic laboratories that we reach by climbing the north stairs to the third floor. The equipment of galleries, dark rooms and printing rooms, with which this branch of the department is fitted may well be the envy of many professional commercial photographers. The courses offered are popular with undergraduates, a fact not to be wondered at in view of the strong incentive of the beautiful Cornell environment to picture-making.

On this third floor there is also a laboratory for advanced general physics and special research, laboratories for spectroscopy, photometry, electric wave and high temperature measurements. Adjacent to the general laboratories on the second floor is a reference room for students' use with several volumes ingeniously screwed fast to the reading desks to prevent their being carried off—a scheme that provokes a smile and is interestingly reminiscent of the chained volumes of the Middle Ages.

Leaving Rockefeller Hall by its north entrance we turn east on Reservoir Avenue and approach the west side of the splendid, new Bailey Auditorium that has been provided by the state as part of the equipment of the New York State Agricultural College at Cornell University. This is an imposing structure of brick and concrete, semicircular in ground-plan, of classic design and provided with colonnades of limestone monoliths at the entrance and along either side. These large columns greatly enhance the architectural dignity of the building and mark it off distinctly from the other structures of the new campus. Both from the spacious front vestibule and from the loggias at either side, wide



BAILEY HALL

doors open into a corridor that surrounds the auditorium chamber, which has seating capacity for two thousand persons. The stage has a very wide opening but it is neither deep nor very high, and in these respects would have been unsuited for the presentation of dramatic pieces requiring the use of scenery of modern elaboration. But it was quite well adapted for the accommodation of the great pipe organ presented by Andrew Carnegie through the late first president of Cornell, A. D. White. While not one of the largest, either in size or number of pipes, this instrument with its range of ten octaves, its six divisions, including an echo organ in the dome at the center of the building, the choir organ in the room over the west rear entrance and a cathedral chime, is distinctly one of the notable organs in America. Practically the whole university community may be numbered as music lovers, accordingly it is not surprising to learn that frequent organ recitals are attended by capacity audiences and that the first time the Annual Music Festival was held at the Auditorium a financial loss was threatened because practically all of the two thousand seats for the four concerts were disposed of in season-tickets at a reduced rate. A large sale of seats to single concerts at higher prices had been anticipated by the management. When it is remembered that the town and college population together total only twenty thousand persons, and that Ithaca is not a wealthy place, it will be understood that quite a measure of musical appreciation is expressed by such a season-ticket sale. In this

connection it is apropos to add that although on the completion of the Auditorium it was feared that its acoustics would be unutterably bad, this difficulty has been entirely eliminated and at present it is a well-nigh perfect audience chamber. Similar praise applies also to the seating arrangement (place is almost equally desirable anywhere in the hall) and to the generally pleasing architecture of the interior.

What might have been dressing rooms for beautiful leading ladies and handsome stars, at the rear and in the basement of the Auditorium, had the stage been differently planned, have been converted by the agriculturalists into classrooms and laboratories for a department that studies plant diseases, officially known as the department of plant pathology. Studying vegetable diseases in an auditorium where music festivals are held! But then it is well known that agriculturalists, the world over, are prone to such incongruities, and of such there must be gradations and refinements. Accordingly we must accept the pig in Paddy's hut and the plant diseases in the Auditorium as examples of a similar phenomenon representing extremes in the range of its possibilities. However, it should be said that the department of plant pathology would be only too happy to move out of these cramped quarters.

The small stucco structure that occupies part of the area to the south of the Auditorium entrance was the Rural School House. This building was planned to demonstrate a one-teacher country school

but as the arrangement is already out of date and may no longer serve as a model the building has been given over to the Cornell Countryman for offices. In this connection it is of interest to note that the New York State Legislature has authorized a further building program for the Agricultural College involving the expenditure of three million dollars, and that plans are now (1924) in hand for these new structures by the State Architect. The beautiful garden of perennials south of the school building is a demonstration plot tended by students in the classes of the department of floriculture.

A short distance east from the Auditorium is the Home Economics Building. This occupies the northwest corner of the Agricultural College quadrangle, which, while not on so extensive a scale as

HOME ECONOMICS BUILDING

the older quadrangle, comprises a similar rectangle marked out by buildings, walks and parallel rows of handsome elms. It is now noon and we will do well to enter the attractive cafeteria in the base-

ment of the Home Economics Building to secure refreshment and to rest our somewhat weary limbs. On entering we are confronted by a huge pile of trays, each supplied with a paper napkin. In boxes, close by, are knives, forks and spoons. While securing a tray and implements we may study the menu that is conspicuously posted on the side wall with the prices stated for each article of food. Then we pass along the serving table that extends nearly across the room and select what we wish to eat, item by item. Competent carvers supply a choice of meats, other helpers dish out vegetables, kept hot on steam heated tables, we pick up our own dessert, ready in rows of dishes, then are supplied with hot coffee or tea from huge urns, and, at the end of the serving table, pay the cashier for our meal. After securing a glass of ice-cooled water from a convenient tap we are ready to select a place at one of the small tables in the attractive dining hall before us. From out the north windows there is a pleasant view and a cool breeze blows in over the green lawn. Altogether, the setting is quite agreeable, we find the food well cooked and the meal proves very enjoyable.

In addition to insuring students good meals at a convenient point, the management and operation of the cafeteria provides a practical laboratory in which the home economics students may become versed in the buying, preparation, cooking and serving of foods in great variety on the scale that this is done in institutions where large numbers of people must be fed at the same time. A costume

shop at the west end of the basement room affords the same opportunity to get practical experience with clothing that the cafeteria does with food. Frocks are there designed and made for customers as in commercial establishments.

Passing upstairs in the Home Economics Building we find on the first floor, offices, classrooms and, at the east end, a model apartment in which young women students in turn have to practise family housekeeping. The appointments and arrangement of this apartment are always subjects for animated discussion when bona-fide housekeepers come to call. An assembly room, seating three hundred persons, occupies the center front of the second floor. Opposite it is a large family kitchen and a dining-room for serving. At each end of the main hall are laboratories where the principles of food preparation and nutrition are taught experimentally. It will be noted that the importance of giving comfort to the inner man is fully recognized by the department. Among the women students of the university it has come to be considered incumbent on the girl who is betrothed during her college career to change her course so as to include cooking courses in the home economics department; indeed the attitude of men of the university toward co-education has actually become much more tolerant since home economics courses have been established. On the third floor of the building various sewing crafts are taught, there is also a chemical laboratory, while on the fourth floor we find a large well-lighted drafting room where prac-

tical instruction in house planning, decorating and furnishing is given. Ingenious methods are employed to give the home economics work a real significance. Thus in one class each girl is required during the term to invent some labor-saving device for the home. This may take the form of an improvement on an earlier device (thus one girl attached a sawed-off broom handle to the handhold of a dust pan, obviating the necessity of stooping). The girls even have a practice baby to attend. The problem of providing an adequate wardrobe for a family of five with a total annual income of one thousand dollars engaged the attention of another group. (This before the high prices of 1917 and after became current!) After discussion as to the maximum amount that would be available for clothing it devolved on each student to make her own list of the needs and to complete the outfit at rates prevailing in the local shops, the total cost not to exceed the budget. The family did not get ultra-modish habiliments, moreover father and brother suffered somewhat since the women did the buying, nevertheless the showing was quite creditable. The rural economy department also has offices in this building.

We cross the new quadrangle now to the main agricultural college building. This has been officially named Roberts Hall, after the first director of the institution, and quite appropriately, as it was the first to be erected of the group of structures that now constitute the college. Roberts Hall is comprised of a group of three buildings, consisting,

as originally planned and occupied, of a central administrative section joined by loggias to the Stone Hall section on the west and class rooms on the east. Entering the basement of the central section we find ourselves in the domain of the mailing department, a scene of bustling activity as this department sends out literally thousands of agricultural bulletins and circulars daily. This is one

THE LOGGIA, ROBERTS HALL

of the ways in which the college keeps the farmers of the state, who can not all come to the school itself, posted on what is new and worth while in the agricultural field, and particularly in regard to the experimental results secured by its own faculty. The special devices employed in addressing and printing circulars are quite up-to-date and would do credit to the equipment of a progressive mail order concern. A case of models showing, by

means of hundreds of miniature replicas of early forms, the probable development of the plow, stands in the basement passageway leading westward. The north basement room at the west end is occupied by one of the plant physiology laboratories; here the workings of the plant organism are studied as minutely as doctors scrutinize the functions of the parts of the animal body. There is, however, no such outcry against the vivisection studies of the plant physiologists as the doctors of medicine must combat. Possibly this accounts for the greater cruelty of the plant scientists; thus they have among their apparatus a horribly efficient looking press for squeezing all the juice from a living plant regardless of the feelings of the poor vegetable. Opposite this laboratory on the south side of the basement is a well lighted and inviting room that houses the Agricultural Library (numbering now some fifteen thousand volumes) and a number of comfortable desks for readers.

On the first floor of the Stone Hall section is another laboratory for plant physiology investigation, also offices for the department of farm practice and of the farm superintendents and the periodical room of the college library. The farm practice department administers the requirement that students must have actual farm training, by finding summer places for the embryo agriculturists and checking up on the kind of work they do in these positions. On the third floor are the main laboratories, offices and herbarium of the department of botany. All instruction and research in the

subject of botany is now done in this department of the College of Agriculture.

We cross back to the main section of the building by the upper passageway. In the hallway of its third floor a number of cases, with display trays at the top, provide accommodation for a collection of some five hundred to seven hundred thousand insects. The curator knows that we can not hope to see them all, therefore has put the more representative local, and striking foreign, specimens of the different orders in the glass cases at the top with interesting bits of reading about each. In the laboratory at the west end of the hall, on the north side, are wall cases with specimens of highly colored exotic butterflies mostly from South America. We are interested to learn that as much as ninety dollars has been paid, though not by Cornell University, for a rare specimen of one such form. In the laboratory opposite, a similar case illustrates protective coloration of insects. Here are bugs looking for all the world like dead leaves, or like the twigs to which they cling. In a series of cases at the east end of the hallway are displayed a great number of glass models of the marine invertebrates, jelly fish from tropical waters, sea lilies, sea anemones and the like, each a marvel of delicate workmanship. As may be guessed this is the domain of the biological departments; the third floor being the special province of the entomologists. The practical application of the entomologist's work is indicated by a case in the center of the hall in which species of insects destructive to cultivated

plants are shown with examples of the nature of the harm they do. In addition to occupying the third floor with their entomological collections, laboratories, classrooms and offices, the biologists' activities extend to the fourth floor where there is similar provision for nature study and limnology, a technical term for the study of the life of inland waters. To supplement their indoor studies the biologists further maintain an insectary in which the life history of insects may be studied, a fish hatchery in Cascadilla Creek and a field laboratory in the Renwick marshes below the city of Ithaca.

While the biological province extends to the fourth floor of the main section of Roberts Hall, a large part of that floor is devoted to the meteorological department maintained in co-operation with the United States Weather Bureau and comprising one of its observatories. Here we find a full set of meteorological instruments, including an automatic triple-recorder electrically connected with apparatus on the roof and so devised that it will register graphically the variations in direction and velocity of the wind, the amount of precipitation and the duration of sunshine and cloudiness. The section director of the observatory extends a cordial welcome to look around, tells us of what stuff the weather is made and so clearly that we soon feel confident of becoming weather prophets ourselves. He shows us how he makes his daily weather map and the process of reproducing it for distribution, then directs us to the roof for a view of his apparatus in action as well as for a pleasing

outlook over all the country round, similar to the prospect we enjoyed from the library tower.

From the roof we descend by the central stairway to the second floor, where the departments of horticulture and floriculture are located. In addition to the usual apportionment of the space into offices, classrooms and laboratories we find the hallway of this floor lined with cases that contain exhibits of a pomological character. One of these, at the west end of the hall, is of exceptional interest —The Morris Collection of the Edible Nuts of the World. It includes about two hundred varieties and is considered one of the best collections of its kind. The inviting appearance of some of the little known specimens suggests future great possibilities for the comparatively undeveloped branch of agriculture included in the technical term nuciculture, the growing of nuts.

The first floor of the main building contains the administrative offices of the college. A fine portrait of former Director Roberts, after whom the building is named, adorns a panel of the central staircase wall. To the north of the main hallway passageways lead to the assembly hall in which an audience of about six hundred may be seated. This hall has, in the past, indirectly exerted a great influence on the life and school spirit of the agriculture students in that, by affording a convenient meeting place of ample size, it has made possible frequent rallies of the college congregation. Thus it has offset the tendency to decentralization that naturally develops in assemblies where, despite a

Rockefeller Hall

Class of 1872 Elms

STONE HALL AND ROBERTS HALL
Home Economics Building in distance

basic unity of purpose, a great diversity of special interests exists. It may be pointed out that the Arts College suffers from precisely such lack of community feeling. In view of the great growth of the Agricultural College this function of the assembly hall has been, in large part, transferred to the new Bailey Auditorium. Thus the agriculture students may expect, as in the past, to enjoy spirited talks by their college dean, and other agricultural leaders, addressed to the whole student body, as well as to hold representative "get together" meetings of their own, despite their continued increase in numbers.

The east end of Roberts Hall, corresponding to Stone Hall on the west end, was until the end of 1923 particularly the province of the dairy department. Now this department has quarters of its own in a Dairy Building that is located next north of the Animal Husbandry Building. The basement laboratories of the former dairy department are to be given over to the mailing department and to repair shops. Upstairs we find lecture rooms and offices for the departments of pomology, farm practice and meteorology. On the third floor are drawing rooms where instruction in the graphic arts is given to all agricultural students who may need it in their work.

Leaving Roberts Hall we may interrupt our regular round of inspection by making a visit next to the new Dairy Building. The extensiveness of the dairy interests of the farmers of New York state has insured that this building be very com-

pletely equipped and fitted with all modern devices for dealing with and manufacturing dairy products.

Around the hallway of the main entrance we note reading rooms and extensive suites of offices for the staff, shared temporarily with members of the faculty of the department of rural engineering. On the second floor of the main building there is a large lecture room and around the front a series of chemical laboratories, each one devoted to a special purpose, as, for example, a dairy chemistry laboratory, a technical control laboratory, an elementary testing laboratory.

The third floor of the main building is similarly given over to a variety of bacteriological laboratories. In one of these we find a large class of young women (from the home economics school) most industriously engaged in determining the number of bacteria in various food products and in finding out how fast they multiply. We are not particularly attracted by the odors given off by some of their specimens, and, in view of the results of their tests, we feel impelled in the future to look somewhat carefully into the antecedents of the oysters, condensed milk, hamburg steak, sausages and other similar food products of which we are invited to partake. This work is very practical. The student's attention is directed to the effects of the presence of the micro-organisms studied, and to the precautions that must be taken to prevent infection, rather than to the learning of the Latin names and classification of the various growths.

Descending again to the main floor we go

through a central doorway and down a few steps into the manufacturing wing that extends to the east for two hundred feet. Here we encounter first a series of rooms in each of which a different variety of cheese is made. Then there is a room in which ice cream is manufactured, another room is an advanced butter laboratory, a third is an elementary butter laboratory. We wonder just what the difference between advanced butter and elementary butter is. We are surprised too at the variety, complexity and size of the machinery used in dealing with this one product, milk. An immense refrigerating plant, pasteurizers, separators, cream ripeners, churns, bottle washers and bottle fillers are a few of the items. There are other rooms at the far end of the wing on an upper floor where milk is received in vast quantities, condensed, powdered, made into butter and made into cheese. A specimen of the cheeses made was sent to, accepted, and eaten by English royalty, a fact that testifies to its excellence if of no other interest. Some notion of the scale of operation is afforded by the annual production figures that have been attained; butter over three hundred thousand pounds, cheese of various kinds over fifty thousand pounds.

It must not be thought that these manufactures are simply a commercial proposition conducted with the sole idea of producing revenue for the department. They serve to make the student of dairy industry thoroughly familiar with creamery operations on a large scale, to supplement his theoretical with practical training. This explains

the rows of student chairs in some of the manufacturing rooms. The classes not only take notes but also perform many of the operations. Altogether this is the best kind of training; the combining of the practical with the theoretical. Increased educational efficiency would result if it could be applied to all kinds of subjects. If a student of English, for example, could be made to write a book while studying composition it might well be that he would more appreciate the very practical application of the precepts presented; especially if he had to make his book so good that it would sell at a profit, as must the dairy products.

As we come outdoors again we are facing west. We retrace our steps to the east end of Roberts Hall and then go across the Agricultural College quadrangle to Caldwell Hall, in which the departments of soil technology and agricultural chemistry are housed.

The appointments of this building give evidence of much care in its planning; the lecture room at the east end being especially admirable in its arrangement and well worthy of the study of any educator who may be responsible for the provision of a similar room elsewhere. A fine portrait of Professor Caldwell of Cornell University, one of the foremost and earliest agricultural chemists in America, occupies the place of honor on the walls of the lecture room. A number of laboratories for the investigation of soils by both elementary and advanced students, as well as various department offices occupy the rest of the building, except that

a part of the space on the second floor and on the fourth floor is given over to the departments of rural education and rural engineering.

The east end of the Agricultural College quadrangle is marked off by the old animal husbandry building, now remodelled to house the department of farm management. The building itself is an unprepossessing wooden structure but its classrooms and laboratories contain interesting charts on the cost of production of various farm products.

The similar shed-like structure behind the old animal husbandry building is the home of the rural engineering department. While unpretentious like its neighbor, the building is not lacking in interesting content. We find exhibition set-ups of water supply and electric lighting systems for country dwellings, models of modern plank frames for barns and an elaborate apparatus for testing the character of spray discharged by fruit spraying nozzles of various types, significantly designated a sprayograph.

Among the trees on the slope to the north of the Rural Engineering Building is a modest structure which formerly housed the department of landscape art, but is now also devoted to the purposes of the rural engineers. The department of landscape art has been made a part of the College of Architecture. While landscape art remained in the Agricultural College a large number of students were here taught the various considerations that enter into the problem of providing an artistic and delightful outdoor setting for the modest country home as well as for the mansion on an estate or the great

public building. Moreover the Agricultural College intrusted this department with the preparation of part of its campus plan, an expression of confidence that, while seemingly only logical, is the more noteworthy in that it has not always been accorded to the experts of other departments of the university when practical problems in their fields have come up. The building itself has a very attractive interior arrangement, its atmosphere seems conducive to artistic effort.

Retracing our steps we now go south to the collection of greenhouses and attached laboratories that are situated just to the east of Roberts Hall. These are given over to instructional and investigation work in floriculture, vegetable-gardening, plant-breeding, soils and plant-pathology. Usually they contain some attractive massed growth of flowers, at present vari-colored carnations, but the greater part of the glass-house space is devoted to experimental planting. Accordingly, the exhibits are interesting only in their technicalities; which we can not stop to have explained to us, because they are so numerous and involved. However, we do note and wonder about a large number of stands of wheat, each stand growing in a separate large pot. The wide diversity in height and general sturdiness of growth shown by the different stands according to the kind of soil and other conditions supplied, indicate the methods by which the fittest plants are culled out, deficiencies of soil detected and characteristics of growth noted at all stages.

To the northeast of the greenhouse range we

note a red brick structure with a tiled roof, the university filtration plant, given by Andrew Carnegie to prevent the recurrence of a typhoid epidemic such as unhappily developed in 1903. At present both the city of Ithaca and the university have adequate filtration plants and make frequent careful tests of the water supply.

Close adjacent to the filtration plant is the new forestry building, Fernow Hall, erected at a cost of one hundred and twenty thousand dollars. The teaching of professional forestry in American universities had its beginning at Cornell, where the first college of forestry in the country was established by New York State in 1898. After a period of efficient work its activities were suspended in 1903, but in the fall of 1911 were again resumed with the administrative organization of a department of the College of Agriculture. From 1914 on the work has been centered in the new building we are now visiting. Here are laboratories for testing timber, several for the study of wood technology, an herbarium, a museum and appropriate class and lecture rooms. In the attic a pleasant room has been fitted up for the forestry club, as well as photographic galleries and dark rooms. The department of plant breeding also occupies quarters in this building. A suggestion of the high regard in which scientific forestry is coming to be held is

FERNOW HALL

given by the fact that at the dedication of this building a letter was read from a man, not connected with the university, expressing his interest in the renewal of the work at Cornell and the hope that in the future a timber might be developed combining qualities not now possessed by any one wood. He further enclosed his check for five hundred dollars to be used as the department saw fit, a gift from a private individual to a state supported institution, a rather unusual sort of donation.

The tall smokestack that projects above the top of the slope to the northeast of Fernow Hall marks the location of the heating plant formerly serving the College of Agriculture. Steam is now furnished to all the buildings of the college from the new university plant.

The old heating station is on a direct north-south line with the Poultry Husbandry Building which faces the main highway leading to the east. Here we have an Agricultural College department with a distinctly specialized field, snugly established in handsome quarters and at home long enough to feel quite at ease. One senses that the officers of this department have, to a large degree, realized their ideals of equipment, and while we may chuckle at the idea of a ninety thousand dollar university building the larger part of which is given over to the interests of the humble hen, one must admit that she is made much of here, and deservedly. Her antecedents and descendants, her anatomy and superstructure, her consumption and production are all studied in minute detail. In a museum

room on the second floor is a picture chart of the record of the premier of her kind, Lady Cornell, with her portrait in the center flanked by representations in oil of the enormous pile of eggs she laid, of the food she ate; and tables showing what she cost while living and the values she produced before she died. Indeed matters are juxtaposed much in that way throughout the department. Thus at the east end of the basement room are three mammoth incubators each capable of bringing to life three thousand chicks at a time, to say nothing of a number of smaller foster-hens. As a counterbalance to this teeming new-life zone there have been installed at the other end of the basement a series of refrigerating rooms where dressed poultry is kept in cold storage. On the first floor we find, at the right of the main entrance, a laboratory for cleaning, testing, grading and packing eggs. We are astonished at the number of defects the hen is apt to conceal in her white-shelled product, and how surely these stand revealed under the scrutiny of the poultry husbandry experts. We learn that eggs are best both as to quality and price in March and April; their fluctuating value is indicated for a period of several years by a large quotation board in the main hall. Below this is an illuminated lantern-slide display illustrating the various ills that hens are heir to. As in the basement, the egg laboratory on the right is unfeelingly placed opposite a killing, picking and packing laboratory on the left. The killing is done most scientifically; the manner is illustrated by a colored

diagram on the wall. The fowl is hung head downward, its throat is cut and its brain pierced. This lets the blood escape and relaxes the tissues that hold the feathers. We are told that an expert can kill, dress and dry-pick a bird in four minutes but it takes the beginning student about half an hour. Everything is done with the utmost cleanliness and economy, they even save the fine feathers. On the other floors we find departmental offices, laboratories, and classrooms used by the department of farm crops as well as by the department of poultry husbandry for theoretical instruction in these subjects. Auxiliary buildings adjacent to the main structure provide houses for egg production, for fattening, brooding, breed observation, food and supplies. In addition to this equipment the department has a farm of eighty acres, about one mile north of the building, where flocks, numbering some seven thousand individuals and of a great variety of breeds, are maintained. Surely the facilities for study of the hen are well nigh complete at Cornell.

Leaving the Poultry Husbandry Building we follow the road eastward for nearly a quarter of a mile before we come to the Animal Husbandry Buildings, erected so far out in order to be near the University Barns which are located still farther to the east. No doubt emulation of the poultry husbandry equipment animated the planning of the animal husbandry professors, for their facilities rival if they do not excel those of the poultry men. The Animal Husbandry Buildings consist of a three-story main structure and directly behind it a

stock-judging pavilion. The south end of the basement of the main building is fitted up as a farm slaughter room with an inclined passageway for leading animals directly to the killing room. Adjacent to the killing room is an up-to-date refrigerating room which in turn opens into a cutting and curing room. Under the east wing of the building we find a room for smoking meats, a room for making lard, another for curing and storing hams and bacon, and a pickling room. A boiler room, locker and lavatory facilities occupy the rest of the space in the wing. On the north side of the basement is a laboratory for experimental breeding.

A large lecture room providing seating capacity for two hundred persons occupies the space of the first and second floors in the east wing. This room has been so arranged that animals may be led directly from the outside on the lecture platform. The first floor space of the main building is devoted to offices and classrooms. The second floor is fitted up for the study of animal nutrition. Here are laboratories for the examination of feed both macroscopically and under the microscope, as well as by chemical analysis. On the top floor we find the departmental library adjacent to a room for advanced research. A harness room and a pedigree laboratory occupy the space at the north and south ends of this third story.

The judging pavilion, in the rear of the main building, is a one-story structure one hundred and sixty feet long and eighty feet wide, the whole nterior consisting of one large room. In the center

is a great, tan-bark floor, giving ample space for putting a horse through his paces, while seats around the sides will accommodate some four to five hundred spectators. Incidentally it may be stated that a Cornell graduate who had had instruction in this department was so much impressed by the merit of the system used in grading the animals that he wrote a long article for the Sunday edition of a New York City newspaper proposing that young men should adopt a similar scheme when choosing a wife. He included a detailed statement of the number of points to be allowed for beauty, neatness, form, amiability and a long list of other attributes, but it must be admitted that at last account he was still a bachelor. Whether this was because he could not find a candidate whom he could score high enough to be acceptable as a life-partner or whether, on instinctive, as opposed to scientific judging, eligible candidates have spurned him would make another story.

Behind the judging pavilion, on the far side of an intersecting highway, are the University Barns, the larger structures being the Horse Barn and the Dairy Barn. A considerable number of horses are kept, as, in addition to their use for purposes of instruction and experimentation, these animals are employed on the University Farms and in drawing freight and other hauling needed by the university. Most of the horses are pure-bred Percherons. The dairy herd consists of Holsteins, Jerseys, Guernseys, Short Horns and Ayrshires. In addition to this stock a flock of about fifty sheep is main-

tained and a number of swine are bred each year.

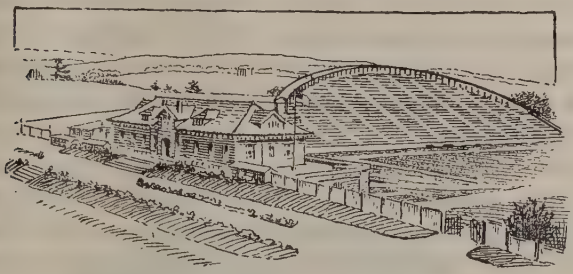
Over nine hundred acres of land are included in the College Farms which extend east, north and south, beyond the University Barns. Tillable fields, pasture lots, wood and forest lots, orchards, plots for soil experimentation, vegetable gardening and floriculture are all included in this area. In June an especially gorgeous display is presented by the peony field when the largest collection of correctly named varieties of peonies to be found any where in the world is in bloom. This is located opposite the rifle range on the country road that leads past Forest Home village. Here, too, many varieties of iris, phlox and gladioli are grown. A very large representation of the cultivated hardy flora and sylva is already included in the plantings on the university grounds and it is planned to establish a garden of the native species on the long strip of land that borders the north side of Cascadilla Creek. With this as a central point of interest the university will possess a Botanic Garden that will afford a very wide variety of illustrative specimens for instructional purposes, while at the same time the garden will add much to the natural beauty and interest of the Cornell environment.

The rear side of the stock judging pavilion is three fourths of a mile removed from the focus of the university campus, marked by the University Library. As there is only a ten minute interval between class periods it will be appreciated that the limit of expansion of the university campus has been very nearly attained. Even now a student

who has a class at one hour in the Animal Husbandry Building and one in the succeeding period in mathematics at White Hall, may not loiter if he would arrive at the second class on time. He has nearly a mile to cover in ten minutes.

We appreciate this extensiveness of the university domain as we return westward from our visit to the University Barns across the wide expanses that comprise Alumni Field. This is the new playground and athletic field for the whole university that covers an area of fifty-seven acres, all of which has been carefully graded at a heavy expense, in large part paid for by alumni contributions. We pass first the tennis-courts, all in a row, and accommodating a great number of players at one time. Then we cross the great Students' Common where there is ample space for some dozen baseball games to be in progress at once. Here we find that it needs only the provision of adequate grounds to bring about active participation in outdoor sports by the great mass of students. The whole field is peopled, it is hard to count the number of games being played. On the terrace level below the Common and to the west is a similar large expanse, the Playground, also open to students generally and as well occupied. For the most part the contests here are between teams in well organized leagues playing off the Inter College Series, the Inter Class and the Inter Fraternity Series. But pick-up nines are also in evidence, in fact every gradation of skill in playing seems to have found opportunity to participate. The

handsome structure at the south end of the playground, which we are now approaching, is the gift of the late Willard Straight, of the class of 1901, in memory of Henry Schoellkopf, member of the class of 1902. It has, accordingly, been named the Schoellkopf Memorial Hall. It pro-



SCHOELLKOPF MEMORIAL FIELD AND HALL

vides handsomely equipped quarters, including baths and locker rooms, for the various varsity and visiting teams. Its elaborate, octagonal, central hall, moreover, gives an adequate setting for the display of the innumerable banners, pennants and cups that are the spoils of Cornell's athletic victories. Prominent among these is the great Intercollegiate Track Cup which found a permanent home at Cornell when, by a splendid victory, the Cornell Team of 1914, for the fifth time since the cup had been placed in competition achieved the Intercollegiate Championship in Track.

From the terrace level of the Memorial Hall we look southward over Schoellkopf Field and Stadium where varsity contests in football and track are now staged. On its east side is an immense con-

crete stadium recently enlarged so that it now provides room for nearly twenty-two thousand spectators. When the stands are full the crowd itself makes a very imposing spectacle as seen from the west. The building with the pyramidal roof that projects up from the level of the terrace next lower is Bacon Practice Hall. Nearly all of the interior of this building is comprised in one large room, an indoor baseball cage on whose earthen floor candidates for the varsity baseball team are trained and sorted while the skies outdoors are still overcast and the ground deeply covered with snow or mud. On a dark March evening the radiance from the myriad electric bulbs that glow under its glass roof and whose rays also flood out through its spacious windows envelops the hall with a blaze of warm light and gives it a cozy and bright appearance in the midst of the bleak winter landscape.

On the lowest of all the levels and at the southwest corner of the new athletic domain is Hoy Field, named in honor of David F. Hoy, registrar of the university, an enthusiastic fan and for long years chairman of the baseball committee. The burning of part of the equipment at Percy Field in the spring of 1920 led to the decision to play the varsity baseball games in 1922 on this new field. Altogether the provision for outdoor sports on Alumni Field is on a scale commensurate with the size and athletic standing of Cornell, and equally attractive in plan and appointment.

It is quite appropriate that another branch of

physical training, that of military science, now has its new home so near to the athletic precincts. The new Drill Hall, for which the New York State Legislature appropriated three hundred and fifty thousand dollars in the spring of 1914, occupies the area across the road from Hoy Field and to the west of the Playground. The drill hall proper is three hundred and sixty-two feet long and two hundred and twenty-five feet wide, and thus provides a vast expanse of open floor space. This has made

THE DRILL HALL

it possible to drill the whole cadet corps throughout the winter. Furthermore it is now feasible to give instruction in military science to both underclasses instead of only to the freshmen, as had been the case before the war. During the war this building was tendered to the national government by the university for use as quarters and classrooms by a ground school for officers in training for the army aviation corps. A temporary mess hall adjacent

to the main structure supplied a suitable eating place. Some six hundred men were in training at one time and as soon as one group completed the course the outgoing men were replaced by a group of new recruits of equal number. The splendid physique of each and every one of these men and their general capableness of bearing made a notable impression on all the university community and evoked much envious comment among the undergraduates.

The highway between the Playground and the Drill Hall leads to the last group of buildings we must visit to make our tour of the university complete. These buildings constitute the New York State Veterinary College, which, like the Agricultural College, is state supported but is under independent administration. The three buildings that extend from south to north along the highway constitute the new hospital for large and small animals. The southern-most of the three is the Farriery. Its ground floor is devoted to an isolation ward and wards for horses and cattle, with an adjoining demonstration hall. On the first floor, at the level of the highway, is the farriery forge-room, fully equipped for the teaching of horseshoeing. A six weeks' course is given each year to practical horseshoers, in this subject, in addition to thorough instruction to veterinary students. The third floor of the Farriery is used for storage and a lecture room. The central structure of the group is the Medical Building. In it are a drug room, clinic hall, physical examination

room and wards for large animals on the ground floor. The second floor has, in addition to student and research laboratories, an amphitheatre lecture

VETERINARY COLLEGE, HOSPITAL BUILDINGS

room with seats in tiers at the same steep pitch that we found in the lecture room of the Medical College. An interesting feature in the construction of this and other of the Veterinary College Buildings is the evident provision throughout for the housing, moving of, and for operations on large animals, patients, but not necessarily always patient. On the third floor of the Hospital Buildings are quarters for the grooms and internes together with a large laboratory. The attic provides facilities for the storage of grain and hay. The north building of the group is a Small Animal Hospital. It also houses the department of materia medica. Here we find a number of kennels provided for small animal patients and an operating room with modern equipment for their surgical

attention, as well as lecture and laboratory rooms for the instruction of students.

The exterior architecture of this group of three buildings is of rather unusual design. The pronounced vertical element apparent in the elevation of the main portions of the structure is further emphasized by the steep roofs that cover them, by the paired, chimney-like shafts that project above the ends and sides of the units, and by a central tower that surmounts the whole group. The effect is certainly distinctive and invites much comment.

Between the hospital buildings and the main building, James Law Hall, are a number of smaller structures belonging to the Veterinary College. Each of these has a distinctive use. Thus there is a Surgical Ward, an Operating Theatre, a Post Mortem Building and a cottage for the groom.

James Law Hall has a larger variety of interesting content than the hospital buildings. Its front entrance opens directly into the large museum of the college. Here we find a great collection of specimens illustrating the anatomy of nearly every kind of domestic animal, large or small. On one shelf is a model showing the mechanism of the eye, on the other the preserved stomach of a sheep, a third has specimens of tuberculous tissues from cows. The second floor houses connected laboratories, that devoted to physiology being especially replete with interesting apparatus. Here are kumographs, sphymographs, tambours and centrifuges. We can not stay to study what even

the names may mean. On the third floor we are similarly confronted by complications in equipment provided for laboratory bacteriological and pathological study. A large lecture room occupies the upper floor of a two-story wing that extends to the east. On its ground floor are the anatomical laboratories where the veterinary students dissect animal bodies as painstakingly as the medical students work over human cadavers. In the new wing on the south side of James Law Hall the Flower Library of veterinary books and periodicals is now housed. This wing also contains a large auditorium, offices and a diagnosis laboratory.

JAMES LAW HALL

Emerging from James Law Hall we stand for a moment under its portico and admire the broad lawn that extends to East Avenue. We follow a path along the side of the lawn to this highway, where we enter under the shade of the Ostrander Elms. This fine, double row of trees was the gift of a farmer, John B. Ostrander, who although he could boast of but small store of worldly wealth, was nevertheless moved by the same abundance of heart that actuated the Founder, Ezra Cornell. In the early days of the university, Ostrander offered his "fine lot of young elms" to Mr. Henry W. Sage

with the sentiment: "They will make a shade for somebody after you and I are gone." Now that his gift has come to fruition we, who are here to enjoy it, are humbly appreciative of the largeness of spirit that prompted an offering from which only a later generation than his might expect to benefit. We are grateful too, for we are weary, and it is pleasant to rest under these green boughs and contemplate the large external proportions and the still vaster internal complications of the present day university whose physical resources we have just finished surveying.

It is indeed a great institution. Nor has it come to a standstill, content with its present status. At every hand we have met with evidence of growth and expansion. Its interests and the varieties of instruction it affords are nearly as manifold as the diverse fields of all human endeavor. Truly the motto bestowed by Ezra Cornell "I would found an institution where any person can find instruction in any subject," has been abundantly realized. We have inspected the university's equipment, have seen some of its work in progress. Where we have best understood what was being done, where the subjects approached more nearly the interests and activities of the every-day life of the multitude we have lingered longest and have profited most in our tour. But this only serves to convince us that the more technical fields and departments have equally great fascination for those who possess the keys to their appreciation.

Above all, though, we have been impressed by

the natural beauty of the university site. From a score of points of view the campus presents itself as a picture, perfect in composition and color. The very number of pleasant outlooks we have seen suggests that there are more. We want to stay and explore them all. We are eager to be numbered among the throng of students that, when the big clock-bell strikes the hour, crowds the walks and cross paths on the way from one class to the next. They idle or hurry, those students, according to their disposition, or perhaps as the next class may be in a building near or distant. It is an animated scene the quadrangle presents in that ten minutes between classes. Freshmen, wearing their diminutive gray caps, patter back and forth; groups of upper classmen gather in doorways, a professor carrying a portfolio bulging with books and papers is a conspicuous figure. In that ten minutes at the hour acquaintance nods to acquaintance, friend chats with friend, it seems that every one on the campus is in sight. Between the hours, however, the great quadrangle, by contrast, seems as silent as a graveyard, betraying no signs of the swarming young life the halls so abundantly contain. It is a positively eerie feeling that comes over us when the last student hastens from our sight into the shadows beyond yon portals.

Now it is late afternoon. A shower just over has made clear, brimming pools of the hollows in the worn, blue flagstones of the quadrangle walks. The sun bursts out from behind a scurrying white cloud and the little silver lakes mistily reflect the azure

of the sky. The air has been washed clean by the late downpour; it is cool and fragrant with the scent of the freshened vegetation. Stragglers from afternoon laboratory classes emerge from the various hallways, wherein they lurked during the rain, and continue their interrupted way. The arched boughs of the graceful elms, the deep green of the ivy covered walls and, at the end of the vista, the gray spire of the library tower, all contribute to make the scene a truly idyllic episode. We feel we are in college precincts, it is the enchantment of the Cornell campus that has here concentrated itself in a single perspective, and will continue always to hold us by its charm as it does each undergraduate and alumnus of alma mater, Cornell.

CHAPTER II

THE FOUNDER—EZRA CORNELL

EZRA CORNELL, the founder of Cornell University was born at Westchester Landing, Westchester County, New York, January 11, 1807. Westchester Landing was situated at the mouth of the Bronx river. The place is now called Cornell Neck and is a part of New York City.

It has become the fashion of late to discount the claims of New England historians as to the part their ancestors had in the development of this country. Whether or not these claims can be justified, with regard to the whole, certain it is that Ezra Cornell did not have a minor role in the drama, nay pageant; and his forbears were indubitably of New England stock for generations back. His coadjutor in the founding of Cornell University, Andrew D. White, though he may have been introduced to Bismarck, so the story runs, as one "born in Homer, reared in Syracuse, president of a college at Ithaca," was similarly of a long line of New England ancestors.

Ezra Cornell's father and grandfather were both named Elijah, and were born and reared in Bristol County, Massachusetts, near the town of Swansea. His grandmother, too, Sarah Miller, had been brought up in that neighborhood. At the age of nineteen, Ezra's father was indentured to Asa Chase of Somerset, Bristol County, Massachusetts, to learn the potter's trade. Though of humble

parentage and station in life, Elijah Cornell was not uneducated, as is attested by the fact that he taught school, both as a young man and in his later days. On July 4, 1805, he married Eunice Barnard, daughter of a retired New Bedford whaler, at New Britain, New York, at a Friends or "Quaker's" meeting, to which religious sect both the bride and groom and their parents belonged. At the time of his marriage Elijah Cornell was thirty-four years old, had been living in Westchester County, New York, and shortly after removed to Westchester Landing, where Ezra Cornell was born. His father and his elder brother, a ship carpenter, meanwhile had joined forces in building a vessel for the Atlantic coasting trade, unfortunately lost on its first voyage. As the vessel was not insured, this disaster cost the partners the greater part of their savings and resulted in the removal of Elijah Cornell to Madison County, New York, where he purchased a farm on Crum Hill, about three miles to the east of the village of DeRuyter.

A settlement of "Quakers" no doubt attracted the elder Cornell to DeRuyter, but the locality did not prove a profitable field of labor. Accordingly he returned, after three years, to Westchester County, to work at his trade of potter, earning, however, only ten dollars per week. Later, following the same calling, he was employed at Tarrytown and then at West Farms. Ezra Cornell, the founder, says his earliest recollections are associated with Tarrytown. He remembers that "one Sunday 'everybody' turned out and went up the

turnpike to see the soldiers march through who were 'going to the lines,' this was probably in 1812." [Page 1 of an incomplete manuscript autobiography written out for S. I. Prime, dated June 9, 1873.] Also more happily: "The illumination of the village of West Farms at the proclamation of peace occurred when we lived there and I well remember it and the great rejoicing of the people for the return of peace." In 1817 Ezra's father moved to near Englewood, New Jersey, and set up earthenware manufacture in partnership with Edward Marshall; but competition and depression of the business proved so severe that in 1818 he sold out and once more removed to DeRuyter.

The journey from New Jersey to DeRuyter, "up country," was made with a two-horse, covered wagon, and was for the most part through an uninhabited wilderness, in almost a straight line across an exceedingly rough, and still a difficultly accessible, part of New York State. Young Ezra, now twelve, the oldest of six children, must have driven the team at times, and thus early been inured to pioneer life, for the journey took about three weeks of November and December, 1818, for the two hundred and fifty miles they traveled.

Farming having proved again unprofitable, by itself, the father set up an earthenware pottery on his own place and marketed the product in the neighborhood, where, owing to the remoteness of the locality, his goods had a ready sale for years. In the work of the shop, as well as on the farm, he used the labor of his sons, and was thus able to

maintain in comfort and contentment what eventually became a family of eleven children.

Ezra, at the age of seventeen, with the aid of a brother one year his junior, cleared and planted to corn four acres of land that had been a beech and maple woodland, between March 1st and May 15th, in payment for the privilege of attending school during the December, January and February preceding. That summer Ezra's father employed a carpenter to erect buildings for the pottery on his farm; Ezra helped this man in the work, and shortly discovered a mistake in the layout—so early did he show an aptitude for mastering mechanical problems. In the next year, again with the assistance of the younger brother, he cut the timber for, and framed a two-story dwelling house for his family. It was the best in the place when built. The neighbors, asked to assist in the raising of the structure, as was the custom, marveled at the perfection of the work of the young builder who had so achieved without instruction or supervision, and the feat won him an enviable reputation for practical ability in the neighborhood.

His success aroused in Ezra the ambition to set up for himself. Accordingly, at eighteen, he left the parental roof, and proceeded to Syracuse, some thirty miles northwest of DeRuyter. At Syracuse he found employment as carpenter, and within three months after he left home was engaged in contracting for himself. Then he went to Homer, where he was employed for one year in a machine shop. Homer was about twenty miles from De-

Ruyter, and Ezra frequently walked home on Saturday night and returned to his work, also on foot, the following Monday morning.

Learning that Ithaca, New York, was waxing prosperous on account of its connection, through Cayuga Lake, with the newly completed Erie Canal, Ezra, in his twenty-first year, set out, again on foot, for that place from his home at DeRuyter; and, after the journey of about forty miles, in April, 1828, arrived at the settlement, of then about two thousand people, that was to be his future home. Ithaca, was, indeed, at the time, a thriving community; for all the country to the south of it, as far as Binghamton, New York, and Towanda, Pennsylvania, sent to Ithaca their lumber and grain for shipment to eastern markets, and received in return a variety of merchandise from distant points (particularly salt from Syracuse) and land plaster, gypsum, then much used as a fertilizer, from local quarries along Cayuga Lake. Ithaca, accordingly, enjoyed all the advantages of a terminal point such as, on a larger scale, have made Buffalo prosperous until today. Since this was before the advent of railroads the immense amount of teaming necessary made a constant stream of traffic over the roads extending southward from the town.

On his arrival in Ithaca, the young mechanic was possessed only of fifteen dollars and a spare suit of clothes. He was, however, immediately able to secure employment in the machine shop of the cotton factory of Otis Eddy, which stood

on what is now the site of Cascadilla Dormitory. It seems that Ezra had known the proprietor, Mr. Otis Eddy, earlier, at DeRuyter and had been influenced by him to come to Ithaca, though apparently not with any promise of a position. Having proved himself competent in this capacity, Ezra was in the next year invited to superintend the overhauling and general repair of Beebe's flour and plaster mills located at the lower end of Fall Creek gorge, just across the bridge from Percy Field. This business, too, he accomplished successfully, and as a result came into the employ of Colonel Beebe for some twelve years from 1829 to 1841. (In the manuscript autobiography, Ezra Cornell says he worked for Colonel Beebe only ten years.) During the latter part of this period he became confidential agent and general manager for the proprietor and in this connection acquired an extensive knowledge of business.

It must not be imagined that it was all easy sailing for the young man, Cornell, from the time he arrived in Ithaca, on through these years. He himself said later that he had seen the time when he could not get credit in Ithaca for a bushel of potatoes or a bag of flour! Shades of the departed —what a change today, when the amount of credit available to any student in his university is such that it often proves to be the individual's undoing. Why this grinding poverty of the founder? Because he never ceased loading himself with further responsibilities. In that phrase, it seems to the writer, is afforded a concise summation of his

whole life. He kept taking them on, those responsibilities, one after the other, each greater than the one preceding, really tremendous ones at the last; and it was the load he was carrying that eventually weighed him down into the grave before his time. Though this conception of his career has not been emphasized by others it may be left with the reader to judge of its truth.

Scarcely had he gained a foothold in Ithaca when he married. That was in 1831, and the bride was Mary Ann Wood, daughter of Benjamin Wood, resident in the township of Dryden, four miles from Ithaca, but formerly of DeRuyter, where Mary Ann was born. Benjamin Wood was a native New Englander, born in Scituate, Providence County, Rhode Island, and thus in Ezra's marriage to his daughter is completed the chain of New England ancestry in the birth of Cornell University. It is related that Mary Ann had a rival, one Welthy Russell, who, as a pun on her name would imply, was the daughter of quite well-to-do people; and Ezra had a rival in Ben Smith, described as a dapper young fellow—this when all four were living in DeRuyter. One day Welthy showed Ezra a knick-knack "frame" that Ben had made for her with the remark, "Ezra, does thee think thee could do as well as Ben Smith has done this?" Such praise for an insignificant trinket must have disgusted the practical Ezra and it seems to have ruined Welthy's chances. Nevertheless the remark rankled, for years afterwards when Ezra had won fame and fortune, and when

Cornell University was first rising, Welthy, with a natural pride in the eminence of a former DeRuyter boy, came to Ithaca to see his works and sought him out. During the interview the founder ventured to ask: "Welthy, does thee think Ben Smith could and would have done as well as this?"

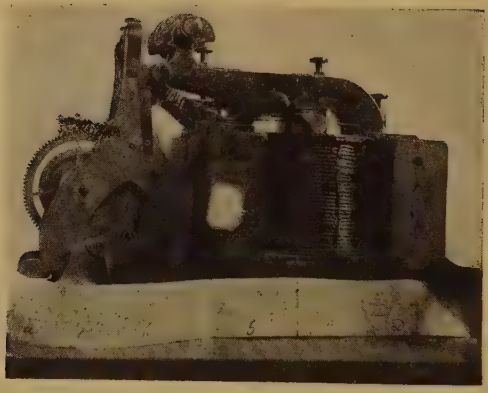
While Mary Ann's folks were by no means poor, she was one of eleven children, hence brought no large dowry to her husband. While it may be questioned whether Ezra Cornell could ever have been persuaded to regard his wife in any sense a responsibility, still he probably was not blind to the fact that the nine children that were the result of their union made a considerable demand on his income.

Moreover his marriage did not meet with the approval of his home people, for Mary Ann was a "world's woman" while Ezra and all his forbears were "birthright" Quakers. The DeRuyter society of Quakers to which Ezra belonged, on hearing of the wedding, accordingly sent one of its members on a forty-mile tramp through winter snow to inform Ezra that he had been "turned out of meeting" for "marrying out," but that they would reinstate him if he would say he was sorry—but this Ezra indignantly refused to do. While at heart he remained a Quaker to the end of his life, it may be that this incident had much to do with the establishment of a nonsectarian pulpit at Cornell.

In the summer after his marriage, Ezra bought several acres of land in a hollow across the creek

"The Nook"
Ezra Cornell's First Home in Ithaca, as it appeared in 1907

The Lower End of the Tunnel



The First Telegraph Instrument

Beebe Dam and Beebe Lake

and to the north of the mills, opposite Percy Field, and there built a small house, long known as "The Nook," in which the family resided for twenty years. It was far from commodious, this first own rooftree of the founder. One room served as a living-room, bedroom and kitchen and in the attic above it the children slept. One little table, only large enough for two, was all they had for serving their meals. Was it any wonder that Goldwin Smith found Ezra Cornell, later, a man "eminently plain, frugal and abstemious in his own habits." There was a time, not so very far back, when the dignity of labor was a matter for sentiment, when this theme was commonly the subject of prints adorning the walls of homes. The present generation in the midst of easy living had lost all due regard for its true value, and it needed a world war to bring us once more to a realization that the toil of the farmer and the mechanic is the fundamental measure of production, and that we need to pay due meed to their station in life. Than this, the humble home of the founder needs no further apology.

At seventeen young Ezra "undertook" to clear off the woods and plant their area to corn, at seventeen he undertook to build a two-story house, at eighteen he undertook to shift for himself, at twenty-two, to overhaul a mill, at twenty-four, to marry, and in the same year to drive a tunnel through several hundred feet of solid rock. Perhaps the last two undertakings should not be mentioned in the same category, but like those that

preceded it they were untried and new things, all successfully accomplished.

The "tunnel" is perhaps the most enduring monument of the founder's own labors that exists about the university. When he entered the employ of Colonel Beebe, all the mills then supplied with power by the Ithaca Falls secured their water through a wooden flume attached to the overhanging rock cliffs on the south side of the stream. This structure was constantly in need of repairs, its annual maintenance, consequently, involved a considerable charge, and the work itself was dangerous on a count of the exposed situation. Furthermore, ice frequently interrupted the flow of the water in winter. It remained for Ezra Cornell to find a permanent solution of these difficulties by means of a tunnel, through the rock cliff, that would provide an uninterrupted flow of water from a point above the falls, over a rock bed, directly to the mills. The several owners were at first skeptical of the plan but finally agreed to provide the necessary funds for its execution. Though without experience in such work, Ezra was nevertheless put in charge, and, proceeding

SITE OF THE TUNNEL
Upper entrance is at base of cliff in distance on left

from both ends at once, managed so well that the two excavations met in the center of the cut only a few inches out of line; and the total cost was below the estimated figure. This tunnel has ever since continued to serve the purpose for which it was designed and at little or no cost for upkeep. As essentially the same plan has been adopted for the most modern of the power plants at Niagara Falls, it would seem that Ezra was at a very early age capable of seeing the best means to an end, at any rate where engineering practice was involved. It was Ezra, also, who engineered the construction of the first Beebe Dam, which resulted in the creation of a storage reservoir, Beebe Lake, with consequent insurance of an even flow of water and provision against seasons of drought.

That he was hampered in carrying out his innovations by the preconceptions of how things ought to be done entertained by the workmen he employed, and the characteristic way in which he met this difficulty are indicated by the following paragraph from his autobiography. "In 1838+39, I built a flouring mill for Mr. Beebe with eight Runns of Stone. This mill was the most complete in all its arrangements of any mill in the state at that time and was undertaken under circumstances which led me to refuse to employ any mill wright or any man who had ever worked on a mill. I made all the plans and drawings for the mill, layed out the work and made all the patterns for the gearing and all castings with my own hands and generally superintended the entire work."

In the year 1836-37, the United States suffered a severe financial crisis, and as a result of this, owing to the general depression in industry, Colonel Beebe, in 1841, sold his mill property, which was converted into a woolen factory, and Ezra Cornell lost the position he had held for twelve years. It is interesting to note that in later years Ezra Cornell was able to give employment to his former patron (who never recovered, financially, from the disaster of the panic period) and in many other ways made easy the declining years of the man who had given him his confidence in youth.

After seeking employment for several months with no success, Ezra Cornell determined to strike out again into new fields. He purchased the state patent rights for Maine and Georgia of an improved plow and, in 1842, set out for Maine to introduce the new invention. In this connection he sought and made the acquaintance of the editor of the Maine Farmer, Mr. F. O. J. Smith, then a very influential man in that state. He succeeded in convincing Smith of the merits of the plow (one can well believe that it must have been a worth while device if the practical mechanic, Ezra Cornell thought well enough of it to purchase an interest in it) and Smith gave the plow very handsome notices in his paper. Cordial relations were, consequently, soon established, and the office of the paper became for the time being a sort of headquarters for the New York plow-agent.

In autumn of the same year, 1842, he visited Georgia. After arriving at Washington, D. C., he

chose as a matter of economy, because he liked it, and because transportation facilities were meagre, to make the rest of the trip and his travels in the state itself on foot; in all about fifteen hundred miles covered at an average rate of forty miles per day. But he was unable to persuade the southern farmers to give his plow much attention, and returned to Ithaca with little to show for his efforts. After spending a few months at home, he set out, once more on foot, in July, 1843, for Maine, to close up his plow interests in that state, and arrived at Albany, one hundred and sixty miles distant, in four days' time. From Albany he went by rail to Boston and from there on foot to Portland, another one hundred miles, made in two and one-half days' time. He said, at a later date, that if he had time to spend in pleasure travel he would prefer to walk wherever satisfactory arrangements for baggage transport could be made, and that the pedestrian enjoys unique opportunities for really becoming acquainted with the country through which he passes. If he could have lived to be whirled through the country at the rate of thirty or forty miles per hour in an automobile, he would have been convinced more than ever that his way was best for actually seeing things.

On his arrival in Portland, Cornell, of course, immediately sought his old friend Smith, and in so doing came upon that gentleman at a very interesting juncture. What happened he himself set down in a memorandum book, and in view of the far-reaching bearing of this meeting on the

future fortunes of Ezra Cornell, and ultimately on the founding of Cornell University, it is well that we have the story in his own words:

"I found Smith on his knees in the middle of his office floor with a piece of chalk in his hand, the mold-board of a plow lying by his side, and with various chalkmarks on the floor before him. He was earnestly engaged in trying to explain some plan or idea of his own to a plow manufacturer, who stood looking on with his good-natured face enveloped in a broad grin that denoted his skepticism in reference to Smith's plans. On my entrance Mr. Smith arose, and grasping me cordially by the hand, said: 'Cornell, you are the very man I wanted to see. I have been trying to explain to neighbor Robertson, a machine that I want made, but I cannot make him understand it;' and proceeding, he explained that he wanted a kind of scraper, or machine for digging a ditch, 'that will leave the dirt deposited on each side, convenient to be used for filling the ditch by means of another machine. It is for laying our telegraph pipe underground. The ditch must be two feet deep, and wide enough to enable us to lay the pipe in the bottom and then cover it with the earth. Congress has appropriated $30,000 to enable Professor Morse to test the practicability of his telegraph on a line between Washington and Baltimore. I have taken the contract to lay the pipe at $100 per mile, and must have some kind of a machine to enable me to do the work at any such price.'

"An examination of a specimen of the pipe to

be laid, which Mr. Smith showed us, and a little reflection, convinced me that he did not want two machines as he said, one to excavate, and the other to fill the trench after the pipe was deposited. I, therefore, with my pencil sketched a rough diagram of a machine that seemed to me adapted to his necessities. It provided that the pipe, with the wires enclosed therein, was to be coiled round a drum or reel, from whence it was to pass down through a hollow standard, protected by shives, directly in the rear of a coulter or cutter, which was so arranged as to cut a furrow two and a half feet deep and one and one-fourth inches wide. Arranged something like a plow, it was to be drawn by a powerful team, and to deposit the pipe in the bottom of the furrow, as it moved along. The furrow being so narrow would soon close itself and conceal the pipe from view."

After some effort he succeeded in convincing Smith of the practicability of his plan and was engaged to construct the machine. It is regrettable that there has not been constructed, for exhibit at Cornell, a counterpart of this apparatus (if the original is not available) for its invention certainly marks the occasion of Ezra Cornell's entrance into the field of electric telegraph development to which he was to contribute so many other ideas, and a business from which he derived, eventually, the large fortune that was, in part, to make possible the establishment of Cornell University.

Shortly before the completion of the apparatus, Smith became so enthusiastic that he invited

Professor Morse to come and see it tried. This invitation Morse accepted, and at that time first made the acquaintance of Cornell. When, on August 17, 1843, the first trial of the machine was attempted on a farm near Portland, the four yoke of oxen that had been secured to draw it proved quite unruly and, when they once started, kept on with a rush for a much longer distance than it had been planned that they should go. Smith and Morse, both greatly excited by the commotion with the animals, had given all attention to their movements. When the team finally came to a halt, no pipe was in sight either on the drum or along the ground. This caused Smith to inquire anxiously if it had been forgotten to put the pipe on the machine. Ezra, who had kept his eye on his handiwork, regardless of the antics of the oxen, assured them that the pipe was in the ground as planned. Smith was still in doubt and directed the driver to get a spade and dig, and the pipe was shortly recovered from its resting place. After it had been rewound on the drum, a second trial, at a less rapid pace, was made and both promoters had the satisfaction of seeing the pipe deposited in the earth exactly as desired.

This gave Smith so great confidence in Ezra Cornell, both as a mechanic and practical man, that he urged him to go to Baltimore and take charge of the laying of the pipe. At first Cornell was disposed to decline this offer as it necessitated abandoning his Maine plow business. But, he says, "A little reflection, however, convinced me

that the telegraph was to become a grand enterprise, and this seemed a particularly advantageous opportunity for me to identify myself with it." A compromise in regard to the settlement of the Maine business was made, and October, 1843, found Cornell actively engaged in laying the test-line of pipe between Baltimore and Washington. It is of interest, in view of the way that the telegraph wires still follow the tracks, to record that it was decided that the best route and place for the pipe would be between the double tracks of the Baltimore and Ohio railroad. This was perhaps the first step toward the later close-linking of railroad and telegraph interests all over the United States.

It had not been realized, however, how vital and difficult a matter the effective insulation of the telegraph wires was, especially when placed underground. Had this been understood at first, it is quite probable that much more care would have been given to the making of the cable, and then we would not have had to endure all these years the unsightly poles that still everywhere mar the landscape. For had it been possible to make the primitive line work underground, it is quite probable that the telegraph and telephone in all their later developments would have staid underground. Interestingly enough, it was Ezra Cornell who constantly warned the inventor and his scientific assistants that their insulation tests were inconclusive, but these advances were rebuffed. As an instance of how thoroughly Ezra, in the mean-

while, had mastered electrical technique it may be related that, finding professional jealousy too great to permit advantage being taken of his suggestions, he finally concluded to make a test on his own account.

The method of Cornell's test marks his aptitude in the new field. Each pipe contained four wires, one each black, red, green and yellow. These Morse's assistants tested by attaching a battery to the black and red wires and completing the circuit with a galvanometer at the other end of the section attached to the *same* wires. If a current was recorded the section of pipe was passed as satisfactory. Convinced that this test was inadequate, Cornell persuaded the man in charge of the battery to go out with him at midnight for a surreptitious trial of his own devising, namely to connect the black and red wires to the battery and then, at the other end, a mile distant, to attach the green and yellow wires to the galvanometer. As he had expected this gave a strong current and proved conclusively that the insulation was imperfect.

The self-appointed midnight testers did not, however, dare tell Morse of the results of their experiment. Consequently the laying of the pipe continued uninterrupted until about ten miles of the line had been put underground. By that time, Morse had become apprised of the situation and there occurred a little scene, so graphically described by Cornell that it is here inserted in facsimile of his own handwriting.

This was the first evidence that the insulation was defective & as we returned to our lodgings I urged upon Mr Avery the importance of letting Prof Morse know of it. He would not consent and I went on with my work of laying the pipe; expecting every day to get orders to stop the work. Thus matters went on until I had got the pipe down as far out as the Relay House, when about 3 P.M. one day the train arrived from Baltimore; and Prof Morse stepped from the Cars and walked out to where I was at work with the machine laying pipe. He said he "wished to speak to me aside". I stepped one side with him and he said, "Mr Cornell can't you contrive some plausable excuse for stoping this work a few days. I want to make some experiments before any more pipe is laid, and I don't want the papers to know that the work is purposly stopped". This was a summons I had been expecting for several days, and was not taken by surprise, I thereupon replied "yes I can manage that", and stepping back to the machine I said "hurrah boys whip up the mules (we were using a team of 8 mules to draw the machine) we must lay another length of pipe before we quit". The teamsters cracked their whips over the mules and away they started on a lively pace. I grasped the handles of the machine and watching an opportunity I canted it so as to catch the point of a rock and broke it to bits, while Prof Morse stood looking on, and in about fifteen minutes after his arrival.

DESCRIPTION OF THE WRECKING OF THE PIPE LAYING MACHINE
From uncompleted manuscript autobiography

It has been intimated that, because of the deficiencies of his early education, "Cornell had not great book-learning," and that, on account of his many years of manual labor, "when his stiff hand wrote a letter he might spell no better than William

Shakespeare." [W. H. Corbin, "Ezra Cornell-Centennial Address."] But Cornell's aptitude in mastering the technique of electrical circuits from books, and the easy hand of the manuscript here reproduced rather completely negative such statements. On the other hand it was Ezra Cornell who wrote to Andrew D. White, the scholar, as follows: "I hope you will write often, in case I can read what you write. You know I have no time to waste." Nor does it seem plausible that his precise utterance was due to the fact that "every word was apparently slowly and painfully thought out." [Hewett, "Cornell University—A History" Vol. I, p. 60.] There is evidence that he was not at all unready in speech. On the occasion of the first Founder's Day, January 11, 1869, he was presented with a birthday cake. The speaker who had the honor of tendering the gift remarked among other things that it was from "a lady friend." [Wilder, Cornell Era, May, 1907.] In receiving the gift, Ezra Cornell very aptly made answer to this by saying, "This splendid cake surpasses in beauty and excellence all presents I have received from ladies, excepting those which have been presented to me from time to time by the lady at my side, my good and beloved wife,"—a sentiment well worthy of Theodore Roosevelt, of a later generation, than whom few were more ready of speech.

When it was finally decided that the plan of placing the wires underground would not be possible within the limitations of the fund placed at

Morse's disposal by Congress, some other solution had to be found. Painful economy was now necessary and, again in opposition to the experts, Cornell proved the practicability of removing the wires from their lead covering without melting the latter. Moreover, he set himself at the task of more completely mastering electrical science and managed to secure the necessary books, despite an attempt on the part of one of the scientific staff to thwart his purpose. From this reading, Cornell became convinced that the wires would need to be placed on poles and it was not long before Morse informed him that he had come to the same conclusion. Then arose the question of insulators, and once more a suggestion of Cornell's was at first vetoed, in favor of the design of one of the expert staff, only to be adopted later, when consultations with eminent electricians proved it to be the only feasible solution. Cornell, on the reorganization of the work, was, accordingly, appointed Assistant Superintendent of the Telegraph, in charge of the work, by the Secretary of the Treasury. The wires were put on poles and the line completed by May 1, 1844. Then was sent the historic first message: "What hath God wrought!" (Ezra Cornell insists that many other messages must have been sent before this one could have been sent, and that he had no knowledge of such a message having been sent at all except from the newspaper stories printed long afterwards.) Shortly after this the National Democratic Convention assembled in Baltimore and telegrams of the proceedings were

sent to Washington, causing great excitement among members of Congress, who crowded the basement room in the Capitol where the telegraph instrument was located. The exploit demonstrated the practical value of the invention and, in a popular sense, convinced the public of its success.

But a fortune was not yet in sight for its promoters. The instruments devised by Morse could only with difficulty be made to work over the forty mile circuit. When tried on a hundred mile circuit from Philadelphia to New York they failed utterly, according to Ezra Cornell's written word, and it was Cornell, the self-taught electrical expert, who supplied the improvement to make them work. Congress, on recommendation of the Postmaster-General, to whom the matter was referred, nevertheless declined to purchase the patent rights for the sum of one hundred thousand dollars. The line from New York to Philadelphia was built by a private company composed for the most part of men who had, comparatively, but small wealth. In the construction of this line Cornell was employed as superintendent, at a salary of one thousand dollars, five hundred of which he immediately invested in stock of the company. This line was completed in 1845; in the same year a line from New York to Boston and another from Albany to New York were projected. The section from New York to Albany was built under contract by Cornell, in 1846, and from this venture he realized six thousand dollars, the first big money he had been able to acquire after thirty-nine years of in-

cessant hard labor. Shortly thereafter, however, he made large profits on lines into Canada and thus laid the foundations of his fortune. Yet when he undertook to extend the telegraph field more widely, by connecting up Chicago with the east, in 1847, and trusted to stock subscriptions from towns along the route and in Chicago, he found it impossible to raise a single dollar in the terminal point, and once more was compelled to shoulder a vast responsibility by investing all his available funds and obligating himself for a large amount more to carry through the enterprise. In this, too, he was successful, and his son, A. B. Cornell, rails at the marvelous change that had come over Chicago, which in 1847, he writes, "was unable or unwilling to take a share of the telegraph stock" but now "in this year of the Lord, 1884, the citizens of Chicago are paying at least three thousand dollars per day for telegraph service." It would be unfair to estimate, in similar terms, how much more vastly the citizens of Chicago are humbled by the telegraph tolls they pay today.

The next company Cornell organized was not, however, so fortunate. This was a line from Dunkirk to New York, and, encouraged by his previous successes, he urged his friends to take stock in the new enterprise. All would have gone well if a novel type of insulator, again devised by experts of that day, had not broken down in service, with the result that the company failed. Why does this always happen when friends and family connections of the promoter have been induced to come

into the project? But by this time the advantage of the telegraph was duly appreciated by many businesses and succeeding ventures proved profitable. In the west where mails were slow its introduction proved especially acceptable. Then a new danger developed. Despite the protection the original companies felt they had acquired in purchasing the patent rights, pirate parallel lines were built and a ruinous competition for business ensued. In 1854 this reached its height, and in that year Ezra Cornell met with an extremely painful railroad accident, an injury to his hand and arm, that kept him for several weeks in confinement. This gave an opportunity for his rivals to spread reports that Cornell was insolvent and to make attempts to gather in his telegraph stock. Fortunately these attacks did not succeed to any great extent and, in 1855, under the leadership of Hiram Sibley, a consolidation of interests was effected by the organization of the Western Union Telegraph Company, which Andrew Carnegie, himself ex-telegraph messenger, who ought to know, considered the first American "Trust." It was only by dint of much persuasion, however, that Cornell was induced to merge his interests with that of the combine. Originally a "western" company it soon recognized no limit to its operations other than the continent of America, and, being for fifteen years the largest individual stockholder, its success finally provided Ezra Cornell with the fortune, estimated at two million dollars, that he was to devote to so good purpose.

EZRA CORNELL

From a hitherto unpublished photograph, apparently taken in 1857 when Cornell had just come into his fortune

Courtesy of Mr. F. C. Cornell

EZRA CORNELL

From a photograph made in 1874, shortly before his death

The merger of the telegraph interests, in addition to securing for him a large fortune and a proportionately great income, also assured to Ezra Cornell a far larger measure of leisure than the grinding necessity of his early years, and the unremitting labors required in the amassing of his wealth, had ever before permitted him to enjoy. The central control by the combine relieved him of the burden of watching over the separate interests of each of the many companies in which he had invested. But, assured of this leisure, and with an income that was truly of princely magnitude for those days, he scarcely remained idle for a moment from that time on until the day of his death, and his future labors were all to be for the benefit of the community, both near and far.

Many men have endured as great hardships, struggled as persistently and worked as unremittingly, as did Ezra Cornell, for their own advancement in wealth, in power, in renown; and no great merit need be accorded them for their eventual successes. But Ezra Cornell is in a different class. As soon as he had achieved for himself he faced right about, and, in the same determined and self-immolating way, literally fought to secure for others some of the privileges that had been denied his youth. It is, moreover, apparent that from an early date he was able to perceive exactly the things within his power that were best calculated to be of benefit to the public, and, as the preceding paragraphs have been a record of multiplying responsibilities in the pursuit of personal fortune

that came to a climax in the successful combine of the telegraph interests, so the paragraphs that follow are in the main a recital of a piling up of other burdens, undertaken for the general good, that came to a climax only at his death.

From the first he perceived and wrought for those things that would yield a return far in excess of the initial outlay. Thus, in 1840, when his means were most slender, he purchased at a cattle-show a fine, thoroughbred, Short Horn bull, pure bred Southdown sheep and Berkshire pigs, and improved through them the stock of Tompkins County farmers; stock that still continues to have an enviable reputation among growers, and owes its excellence, no doubt, in large part to this initial impulse provided by Ezra Cornell. In the several acres that surrounded his small home on Fall Creek, he developed an excellent orchard and acquired a high standing as an authority on the nature of insects injurious to fruit, and methods of combating their ravages. When, in 1857, he had become possessed of a fortune, he was able to gratify these desires for the improvement of agriculture on a larger scale. Accordingly, he purchased a farm of three hundred acres, a large part of which was subsequently to become the campus of Cornell University; and on this "Forest Park" estate built a residence, established fine herds and conducted a wide variety of agricultural experiments. That the name, "Forest Park," of his second home-site, was well chosen is evident from the setting of the house in a sightly grove, at what is now the northeast

corner of Stewart and South Avenues. He organized a Farmers' Club of Ithaca and provided it with meeting and reading rooms; in 1858 was made president of the county agricultural society and, in 1862, became president of the New York State Agricultural Society. In that capacity, and in the same year, he went to the International Exposition at London as the official representative of the society. This was the only opportunity of his lifetime for travel in Europe, and in the interval between May and September, in addition to his duties in connection with the exposition, he visited noted herds in England, made observations and purchases of the stock, and made a trip, several weeks in length, through the continental countries.

It is not surprising that, in an agricultural district, the value of the services of such a man in state affairs was not slow in getting recognition. Hence his nomination, in 1861, by the Republicans for member of the Assembly of New York State from Tompkins County. This action was taken without Mr. Cornell's knowledge, so that, when elected, and reëlected the next year, it may be said that he volunteered this service also. In 1863 he was elected state senator and served in that capacity for four years, positively declining a renomination in 1867, because of the other burdens he had meanwhile been shouldering. In the senate he first met Andrew D. White, and the eventual result of their acquaintance was the founding of Cornell University, as is detailed elsewhere in this volume. His political career, it will

be noted, extended through the Civil War period, and his attention as legislator during this time was directed first to all those acts having for their purpose the sustaining of the federal authorities in the preservation of the Union, and after that to legislation bearing on the welfare of agriculture and public education.

It is an interesting fact that Ezra Cornell proceeded in his efforts to remedy difficulties by his benefactions in the same order that he had encountered them in early life; it seems as if he forgot no step. With the troubles of the agriculturalist he was familiar in boyhood, hence his first aim was to improve farm conditions. Then he seems to have remembered how meagre was his opportunity to secure even a rudimentary education, particularly the necessity of borrowing books, and the difficulties he encountered in this connection, both in Ithaca, and later in New York and Washington when he wished to study electricity. Hence the determination to found a free library. In later life he had been impressed by the great value of a technical education, hence his determination that this should be available to poor boys, and, as a result, the crowning achievement of his career—the founding of Cornell University. Finally, realizing from his own success in promoting the telegraph, that rapid interchange of thought and goods was essential for national development, he put the whole strength of his mind and fortune to the task of railway building.

The book difficulty he solved in characteristic

fashion. We have it from the pen of no less an authority on the subject than Andrew Carnegie [Centennial Address, 1907] that "to Cornell is to be awarded the credit of being one of the foremost to establish on this continent a library free to all the people." For that is what he did, and the project had become a firm purpose in his mind as early as 1857, almost immediately after he had become possessed of the means to accomplish it. It is sufficient to say, without reviewing the development of the plan in detail, that in 1866 the Ithaca Cornell Library was presented to the citizens of his home town as an institution "which" (in his own words) "shall be *free* to all residents of the county of Tompkins." At a cost to himself of some sixty-five thousand dollars, he provided, not only for the erection of a building to house the library, but also for the first lot of books and for its maintenance, thus outdoing the illustrious Andrew, who praised Cornell, but believed that the beneficiaries should bear a large share of the cost.

It should be especially noted, also, because it presages, in a significant way, the similar attitude he took in regard to Cornell University, and the profound influence this attitude has had on all university life since, that the management of the library was entrusted to a board of trustees expressly selected as representative of all creeds and of the other varied interests of the county. It was to be a nonsectarian institution and as such it foreshadows the, even more definitely fixed, like policy

adopted in the management of the university that bears his name.

In the years that followed, Ezra Cornell's time was almost wholly taken up with the affairs of Cornell University. The need for an institution which should combine "practical with liberal education" [Ezra Cornell, "Opening Address," October 7, 1868] must have been in his mind for a long time if the following incident, related by Daniel Butterfield [Founder's Day Address, 1898] may be interpreted as an indication that he appreciated the value of such teaching at the time of the occurrence. It seems that Butterfield returning to his home during a vacation period in his sophomore year at Union College, in 1844, found his father entertaining a visitor, a tall, straight man of some thirty-seven years, who asked the young student many pertinent questions regarding the instruction in the natural sciences and chemistry and particularly about the magnetic telegraph. The boy was able to describe this apparatus and then the stranger asked if it was simple and easy to operate, and Butterfield junior answered that any young man or young woman of sufficient intelligence to learn piano playing could do it. Then the stranger said, "The boy has got it, college is doing him good," and brought his fists to the table with emphasis. On this the father said, "My son, this is Mr. Cornell, and we are going to build a telegraph line from New York to Buffalo." That the impress of this incident, and probably of others of similar nature that are unrecorded, was enduring is indicated

by the fact that in 1850-54, when many public bodies, for example the legislature of the state of Illinois, were addressing memorials to Congress asking that grants of public lands be made for the purpose of establishing industrial and agricultural schools, Ezra Cornell was in active correspondence with Professor J. B. Turner, of Illinois, who was an earnest advocate of this idea, in regard to the form and scope of such institutions. [Hewett, Cornell University—A History.]

In 1862, as President of the New York State Agricultural Society, Mr. Cornell was, *ex officio*, a trustee of the first New York State Agricultural College, located at Ovid, Seneca County, New York. This institution had been started by leading agriculturalists of the state and its resources consisted of a loan of forty thousand dollars from the state and an equal sum raised by private contributions. These funds had all been expended in the purchase of a site and the erection of a building. Its doors were first opened to students in the autumn of 1860, with an entering class numbering between forty and fifty and a faculty of five professors. There was, however, no endowment and little equipment. In 1861 the Civil War began, and, as many of the students enlisted and the institution's affairs were languishing financially, the trustees decided not to reopen that fall, and this action proved to be the end of its career. The object of the institution had, however, interested Cornell greatly and when, in 1865, it developed that the People's College at Havana could not ful-

fill the conditions under which it had received the Land Grant Fund, Cornell proposed to his fellow trustees of the Agricultural College that he would give the institution three hundred thousand dollars provided that the college be removed to Ithaca and that it receive from the legislature one-half the income of the Land Grant Fund.

How this first offer to the cause of higher education eventually led to the founding of Cornell University is related in another section, but it is interesting to note here Ezra Cornell's early insistence on Ithaca as a university site; especially in view of his disinclination to have his own name used in designating the institution and in connection with a story current in the early days of the university. It is related by Goldwin Smith, that Cornell was urged to locate the university at Syracuse on account of the superior urban facilities there available, but that he refused for the reason that, when a mechanic, he had once waited all day on the bridge at Syracuse to be hired and at last had been hired by a man who cheated him of his wages. It should be remembered, too, that in all his university planning he had in mind to help those in as narrow circumstances as were his early days. This is emphasized by a sentence from his "Opening Address": "I believe that we have made the beginning of an institution which will prove highly beneficial to the poor young men and poor young women of our country."

From the time when he made the first offer of three hundred thousand dollars to the New York

State Agricultural College until the charter of Cornell University had been formally granted (April, 1865) the realization of this project had been the chief care of the founder. It seems strange, now, that he should have been compelled to make a fight for the privilege of giving so generously to the cause of higher education and that he needed, indeed, to endure personal villification to achieve his philanthropy. But no sooner had this been accomplished than he turned to the still greater task of making it secure. He was now great, in Ithaca, where he had been little, than which there is said to be no keener pleasure, and it might seem that he could now rest content and let others care for the work he had so well begun. But such was not Ezra Cornell's way. Immediately the Land Grant was secured for Cornell University and he had visions of how its value might be greatly enhanced, by locating desirable western lands instead of selling scrip. With him to plan was to do. As the state was not permitted to make locations outside its own boundaries, as the university could not afford to do so, and as no one else would, he set himself to the task, and thus entered again upon the same sort of arduous toil that had been his portion in earlier years. His agents cheated him, and he did his best to retrieve their faults for the benefit of the university. His entire personal fortune wavered in the balance but he held steadfast to his purpose not to sacrifice any particle of what had been so dearly won. Two years before the university opened its doors to students, he had

entered upon the task of realizing this greater endowment for Cornell and he bore the burden of personal and financial responsibility of the vast enterprise for eight years. It was only a few weeks before his death, in 1874, that he was relieved from his contract. During the long years of waiting for the pine lands to bring some return, the university often faced bankruptcy. Students flocked to the institution, crowding its limited accommodations, professors were appointed, but there was not enough money to pay the bills and salaries. The year 1873 was a time of panic, Ezra Cornell had broken his fortune in paying taxes on the lands, and worse, had broken his health in the service of the university; the trustees had loaned, on what seemed worthless security, one hundred and seventy thousand dollars, and gave, as a free gift, one hundred and fifty thousand dollars more to tide over emergencies. And yet, as the founder was going down into his grave, he held fast to his determination that the lands should not be sacrificed, and almost his last words were, "Don't give up my policy. The lands will yet be worth three millions of dollars." And while this fight was going on to save Cornell University the personal attacks upon Ezra Cornell reached their height.

Meanwhile, the founder had burdened himself with still another responsibility, the financing of several railroad lines, and this burden also he shouldered for the immediate benefit of his fellow citizens of Ithaca and the ultimate good of Cornell University. When Ezra Cornell first came to

Ithaca the town was enjoying unwonted commercial prosperity on account of its geographical situation with respect to the canal and lake system of transportation which at that time afforded the only feasible means for the long distance conveyance of bulk goods. Ithaca, at the head of Cayuga lake, was the shipping center for all the products of those sections of New York State and northern Pennsylvania lying to the south of it, over a quite extensive east-west range. In turn, supplies of merchandise received over the Erie canal and Cayuga lake route for this quite wide territory were landed at Ithaca and from there carried to their final destination by the teams that had brought the grain, coal and lumber for export. While Ithaca thus commanded the trade of its hinterland it continued to be the commercial center of all the region and prospered accordingly. But, beginning with the extension of a canal from the southern end of Lake Seneca to the Susquehanna river, there came a falling off in trade, and later, when the Erie railroad was built through the southern tier of New York counties, with branches to Syracuse and Canandaigua on the canal, the business of Ithaca declined until it was confined almost altogether to the trade of its own home county of Tompkins. So complete a reversal of conditions as Ithaca suffered has seldom been experienced by a center of population. From the point of greatest commercial importance in its section, Ithaca became, in fact, the most isolated of local villages with the change from water to land routes. The traffic that had formerly flowed along

this one chief north and south route was broken up into a large number of short, local, north and south, overland feeders to the east and west railroad lines, the Erie on the south, and the New York Central on the north, leaving Ithaca stranded as a midway point between the two trunk systems.

Such continued to be the situation at the time of the founding of Cornell University. True, a branch line railroad between Ithaca and Owego had been built, connecting the town with the Erie system, and steamboats made connection in summer with the New York Central at the northern end of the lake. But at best these were sorry conveniences in comparison with the advantages enjoyed by places on the main lines. Thus Andrew D. White recounts that owing to the necessity of living in the university "barracks" during the first few years of the institution's existence, he could not have his family with him, accordingly devoted to them, at Syracuse, the time from Saturday afternoon until Monday morning. In summer the trip by boat to the train that this necessitated was not so bad, as it was possible to read or write en route, but in winter he had to drive nearly twenty-five miles through mud, slush, sleet or snow to catch the train at Cortland. One such journey took ten hours and the sleigh was upset three times in drifts on the way.

This condition was early recognized as the most serious embarrassment of the location of the university at Ithaca. As, on the other hand, the location in his home town had been about the only

personal demand made by the founder, it is natural that he must have felt the matter keenly and set about in characteristic way to remedy it. Thus in 1866 there was organized the Ithaca and Athens railway, with Mr. Cornell as president, to connect with the Lehigh railroad, giving an outlet to New York and the east. While this road afforded some relief, there still remained the urgent demand for adequate connection with the New York Central system. About this time a law was passed authorizing the bonding of towns and villages to provide for railroad building, and under this stimulus three other roads began building, one along the east side of Cayuga lake to Cayuga bridge, another on the west side of the lake to Geneva and a third from East Hill to Cortland. All of these have since been merged into the Lehigh system. For these projects the town and village of Ithaca bonded themselves to the extent of six hundred thousand dollars.

The easy issuing of the bonds of course encouraged other towns and villages also to encumber themselves in the hope of achieving commercial prosperity and the net result was undue promotion and speculation. The town and individual subscriptions were usually only sufficiently large to provide for right of way and grading, leaving all the other construction work and equipment to be secured by mortgage on the roads themselves. Prices on materials, owing to the great demand, rose to extravagant figures, and the excessive costs involved made it difficult to place railway bonds at a satisfactory rate.

Although Ezra Cornell had subscribed liberally to the several Ithaca projects, he had taken no active part in their organization, as his time in this period was more than occupied in conducting the business of the Land Grant contract, the location of the western timberlands and their management for the benefit of the university. Hence it was only when the heads of the Ithaca and Geneva road, unable to secure the necessary financial assistance elsewhere, appealed to Cornell for help, that he was actively drawn into the enterprises. First he was induced to invest eight hundred thousand dollars in the Ithaca and Geneva project to provide for its completion, and later a similar amount in the Cortland enterprise, which otherwise must have been abandoned. Thus, after having devoted three-quarters of a million dollars of his fortune directly to the interests of the university, he now added another million and a half to his obligations in order to promote its prosperity and that of his home town. To assume this load he had to dispose of all his remaining valuable telegraph stock, by which two-thirds of the sum was raised, and to borrow the other third on his personal credit.

Despite the enormous and diverse responsibilities under which he was now proceeding, Ezra Cornell went forward with courage, and with his old-time energy and perseverance; and all might have come out well had it not been for two unexpected calamities. True, urged by various friends, Andrew D. White ventured to remonstrate with the founder for going into these railway enterprises

so heavily at his time of life, and while under so heavy a financial burden elsewhere, but to this he only answered: "I shall live twenty years longer and make a million dollars more for the university endowment." But in 1873 came a financial crisis that disturbed, and even destroyed in part, the foundations of the business structure of the United States. Interest on railway bonds was defaulted by nearly every one of the enterprises; such bonds shortly became almost worthless securities. And in the midst of the struggle and discouragement of this upheaval, Ezra Cornell was prostrated, on June 9, 1874, with pneumonia. He was confined to his bed for several weeks, and although he slowly improved in the months that followed, and was even able to make a trip to New York and the seashore later, he never made any decided recovery. Meanwhile knowledge of his illness impaired his personal credit and made it necessary for him to do the business that absolutely demanded his attention under even greater harassment than would have been the case normally in those panic days. No doubt the anxiety of the circumstances materially aggravated the effects of the disease.

Eventually the founder, too, felt that the end was near. Judge Finch [Founder's Day Address, 1887] has recorded the first pathetic signs of surrender of his tremendous personality. During a consultation one day, over a particular danger to the university, Ezra Cornell folded his hands on the table, placed his head upon them and said only, "You must do the best that you can, I am not

well!" From that time on he grew steadily weaker. It is a pleasure, however, to set down that before he died, on the ninth of December, 1874, the university trustees were able to take over all the obligations that the state held against him and to place in the founder's hands as he sat in his sick room every bond he had given in connection with the Land Grant contract and to assure him that his work for the university had not been in vain. Just a few weeks before his death, too, it was found possible to complete a contract that discharged him of some three hundred thousand dollars of personal liabilities in the Cortland railroad and also, thus, to assure its completion. Though his estate did not receive a cent of return for the half million he had actually invested in the road, this arrangement nevertheless achieved the purpose for which he had entered upon its financing. This left only the Ithaca and Geneva enterprise unsettled at the time of his death, and his executor managed to sell his interest in this for two hundred thousand dollars, about one-third of the sum he had put into it. Of his original two millions this money was about all that remained, and the balance, plus all the energy of his latter years had been spent in the promotion of unselfish interests, first and foremost of which was Cornell University. To the very end of his life he persisted; on the day of his death, he arose, dressed, amid the protestations of his family, and gave attention to some business matters during the morning. Overcome by weakness he was, however, compelled to seek his couch

ENTRANCE TO THE VILLA CORNELL
Over the Door is the Motto "True and Firm"

ITHACA FALLS

Situated between Ezra Cornell's first home and the mills in which he was employed for twelve years

before completing the work and died shortly after noon.

Thus the end of his deeds—but what of the man himself? The founders of the earlier American universities are mere wraiths of a long distant past—Harvard, Yale, Amherst; and their contributions to the institutions that bear their names were only in the nature of a nucleus. On the other hand, the great funds that have been bestowed on institutions newer than Cornell, involved no personal sacrifices on part of the donors. After they had given they still had plenty. Only Ezra Cornell gave both his fortune and himself to his institution and that so recently that men still live who worked with him. Hence, Cornell University may very truly be said to have a real founder, a man whose personality can be realized today and it should be the endeavor of every alumnus and alumna of Cornell to keep this memory vivid for uncounted future generations of Cornellians. Thus each graduate of Cornell will receive a heritage of personal inspiration from the life of the founder of a character denied to the students of both the tradition-worshipping and the *noveau riche* institutions.

Ezra Cornell was a tall man, six feet or slightly over in height, angular and spare in form, but of muscular build, for he ordinarily weighed about one hundred and eighty pounds. In early life he was of commanding presence but became slightly bent (what wonder!) in his later years, and had then a slow, steady, stiff gait. His features were rugged, their most marked characteristics being his

prominent cheek bones, his high unfurrowed brow, thin compressed lips, and a firm jaw, only partly concealed by a sparse, gray beard. He had also shrewd, sharp, straightforward, blue eyes, and his expression in repose was stern, austere, even forbidding. Goldwin Smith says "his figure and face bespoke force and simplicity of character." To a stranger he seemed hard and repellent and likely to be proud. An observer who knew both men relates that he immediately reminded one of Abraham Lincoln; there was the same angularity, the height, the slight stoop, the quiet manner and the habitual gravity of expression. In demeanor he was most reserved, too brusque for dignity at times, with an exceeding reticence often trying to his most intimate friends. His voice was commonly harsh and shrill, he had a good memory and was a close and careful observer. Altogether this made a rather forbidding exterior, but it belied in many ways the cordial and sympathetic soul that it covered, for in conversation his face became animated, his eyes were illuminated by flashes of kindliness on occasion and his humorous appreciation of situations soon made itself apparent to those who had concerns with him.

During the early years of the university, he was a familiar sight on the rough unfinished campus over which he commonly drove in a shabby buggy, to which was hitched, surprisingly enough, an equally shabby horse. His garb was modest, so much so that it surprised many of the early students who had never before seen a millionaire; but

it seems he commonly wore a tall hat. The grumbling of the students at the unfinished conditions of the university was quelled most effectively by the earnest and devoted labors of Cornell himself in pushing things to what then stood for completion. On the first day that the university was open to students, a notice was posted that all who desired work might report the following morning at seven o'clock for labor in constructing a road from Morrill Hall to Cascadilla Place. On the appointed day an army of students with wheelbarrows and shovels began work upon the crest of the (then) hill between what are now the Psi Upsilon and Kappa Alpha chapter houses. Before night something that looked like a rough opening through the thickets extended down the slope to the creek. Ezra Cornell visited the scene and laughed heartily at the initial success of his effort to combine liberal and practical education.

On November 10, 1868, it is recorded in the "Ithaca Journal" that "the way the boys take hold of the spade and wheelbarrow indicates the stuff that great men are made of. Mr. Cornell himself, as if taken with the spirit of the thing, was seen a few days back, with a pick-axe in his own hands, giving the boys his personal countenance and management."

The founder quite frequently attended lectures and laboratory classes as is attested by the diary of one of the first faculty noting seven appearances in his classes. Although it can not be said that he was ever popular with the student body as a whole,

those who came to know him liked him much, for he showed many personal kindnesses to individuals. But as for the commonalty, the situation can not be better expressed than by the speech of one of their number who said: "If Mr. Cornell would simply stand upon his pedestal as our 'Honored Founder' and let us hurrah for him, that would please us mightily; but when he comes into the laboratory and asks us, gruffly, 'What are you wasting your time at now?' we don't like him so well." To tell the truth he probably "scared the undergraduates stiff," while chuckling himself at their fluster. Imagine the president of the university, now, pursuing such tactics, and some idea of the effect will be gained.

That Cornell himself quite enjoyed these encounters will be further apparent from the following episodes. On one occasion a student obsessed with a hobby for autograph collecting appeared at the founder's house, asked for Mr. Cornell and was informed by the servant that Mr. Cornell was at dinner. "Well," said the collector, "I only wanted his autograph with a thought or sentiment." The servant disappeared and shortly returned with a slip of paper for the delighted and expectant visitor. When, however, the importunate youth had read the sentiment his feelings must have been mixed for it ran: "I do not like to be disturbed at my meals. Ezra Cornell." Another time some students came to inquire whether they might buy some apples from the university orchard for their club. Cornell asked how many they wanted.

The spokesman answered, "Ten bushels." Immediately Cornell queried, "How many have you had already." At this the students were thrown into great confusion and owned up to "a bushel or two!" The founder's eyes twinkled then as he told them to help themselves, that he thought they were perhaps entitled to a "few more" as a reward for their honesty. If he saw a boy smoking, he would go up to him and ask him if he had fifty per cent of brain power to spare. Altogether he must have been quite a trial to the student body and he himself must have enjoyed the situation.

Yet Ezra Cornell was a man wholly without personal vanity. His modest attire and frugal life indicate this and it is apparent from other facts. In his last years he was engaged in the construction of a new residence known later as the "Villa Cornell." It is quite unlikely, however, that he was responsible for that name. The building is now the Delta Phi chapter house. Ezra Cornell's first interest in its building probably was the prospect of enjoying the commanding outlook, afforded by its site, of both the lake and valley and its convenience of location to both the town and university. He was, however, never to have the pleasure of living in the structure though he gave much time to its building. Nevertheless its cost (one hundred thousand dollars) seems to have caused him some concern, a sense of personal extravagance, for he once remarked, "That new house of mine is a piece of folly," but immediately after continued, "no, I think our mechanics here will be benefited by hav-

ing before them a perfect piece of work." And he proceeded accordingly, for he visited various quarries to select the best stone in the state, employed stone carvers that had been at work on the Cologne cathedral, and brought skilled carpenters from England.

The stone carvers fashioned a scroll in the stone above the front entrance of the new house but left it blank. On seeing this Andrew D. White suggested to the founder that he have carved there the translation of an old German motto "*Treu und Fest,*" "True and Firm." As Cornell made no objection this was done, and it certainly was a rubric entirely symbolic of his character. In his business affairs he often needed to oppose determined individuals and great combinations of capital but his firmness, perhaps persistence would be the better word, carried him through, for as he said himself, laughingly, my way is "to tire them out." He had no misgivings in regard to the coming importance of the university he was creating. "With the confidence of a prophet he pointed first to one elevation and then another naming over one by one the buildings which were to adorn them in the future," as he walked over the campus, with its then solitary structure, in converse with one of the first faculty. On another occasion he gave voice to his envy of a younger man, "who might reasonably expect to see how the scene would look after the changes of twenty-five years, while for him there was no such hope." To Goldwin Smith he said that he hoped the day would come when there

would be five thousand students in his university. Could he have lived to see the fiftieth anniversary of the institution, as did the co-founder, Andrew D. White, he would have found that hope realized.

When suggesting the legend "True and Firm," Andrew D. White was careful to point out also that some people might translate the last word as "obstinate." It was well that he did so for petty detractors immediately cited it as a proof of Ezra Cornell's vainglory. But it is not likely that this did much to shake his equanimity in view of the extraordinary composure and fortitude with which he withstood the bitter and malicious attacks he had to endure in connection with both the project of Cornell University and his plan for increasing its endowment. In each case he was "true" to his purpose and "firm" in his determination to see it through—no more. Obstinate is hardly an adjective to apply to a man who disposed of his private fortune for the public good and then also used every personal energy to promote the well-being of his philanthropy. When the bill for the incorporation of Cornell University was being considered by the New York State legislature, and a lawyer, employed by one of the sponsors of a small college opposing its passage, in his speech called Ezra Cornell's project "a selfish scheme," a "job," a "grab," and pictured the founder as a swindler, the subject of the remarks remained perfectly calm, his only comment being "If I could think of any other way in which half a million dollars would do so much good to the state I would give the legisla-

ture no more trouble." But he could not, therefore, remained firm in his purpose. Later when the founder was bitterly accused, again in the legislature, of using his land contract, made for the benefit of the university, to enrich himself further he made a call on Andrew D. White the following morning at six o'clock, rousing him by throwing gravel against his bedchamber window, and calling out serenely, "Come down here and listen to the chimes; I have found a spot where you can hear them directly with one ear and their echo with the other." After the echo had been investigated he said seriously: "Don't make yourself unhappy over this matter; it will turn out a good thing for the university. I have long foreseen that this attack must come, but feared it would come after my death, when the facts would be forgotten and the transactions little understood. I am glad the charges are made now while I am here to answer them." It must not be inferred from this that he was entirely unfeeling. In his own family when the attack was discussed he remained silent for a time, then his eyes filled with tears, he said, "Girls, I am willing to abide my time—perfectly willing to abide my time." The committee appointed to investigate the matter, though in part hostile to the purpose of Mr. Cornell's plans, the enrichment of Cornell University, completely exonerated him of any selfish motive and of the slightest deviation from the course that the legislature had itself authorized.

Most of the attacks were inspired either by

narrow, conservative hatred of a builder along new lines or by plain envy on the part of institutions or individuals. A would-be socialist, who sought to banter him by saying in his presence that "he thought he should have just about one-half of Mr. Cornell's means," earned Ezra Cornell's immediate retort, "It would be great fun getting it back again."

Plain, hardworking, frugal; kindly and sympathetic under a forbidding exterior and gruff manner; self reliant, determined, true to his purposes; farseeing and capable of action in accordance with his vision, despite discouragement, detraction and defamation—such was the founder. In the words of Goldwin Smith: "Now Ezra Cornell sleeps in his grave of honour. His epitaph in the Memorial Chapel like that of Wren in St. Paul's Cathedral, might be *Circumspice*."

CHAPTER III

OF HISTORICAL INTEREST

THIS short account does not pretend to be a complete history of the university, even in outline. There is, indeed, small need for anything of such pretensions. President White's "Autobiography" supplies the personal reminiscences that give an insight into the men and conditions that led to the founding of the institution and tells the history of its early years. This work every undergraduate should read. As a matter of fact it is one of the best sellers at the local bookshops.

The entirely admirable account of all the significant events of later years, penned by Professor Huffcut, former dean of the College of Law is, on the other hand, too little known, primarily because it is buried in an obscure government publication. To indicate the difficulty of even referring to it, and in the hope that this will lead to its being more often consulted, and chiefly as an acknowledgment of how much these paragraphs owe to his work, the full title of the document in which Professor Huffcut's history appears is given on the following page.

The best general sources for information of changes since 1898 are the Cornell Daily Sun, the undergraduate newspaper, and The Cornell Alumni News, the alumni weekly.

Cornell University owes its existence to the genius, enthusiasm and labors of two men, Ezra

Cornell and Andrew Dickson White, and in almost equal measure to each of them. Absolutely unlike in temperament, education and tastes, the one of mature years, a business man, self-made; the other

(WHOLE NUMBER 264)
UNITED STATES BUREAU OF EDUCATION
CIRCULAR OF INFORMATION, NO. 3, 1900

CONTRIBUTIONS TO
AMERICAN EDUCATIONAL HISTORY
EDITED BY HERBERT B. ADAMS

NO. 28
THE UNIVERSITY OF THE STATE OF NEW YORK
HISTORY OF HIGHER EDUCATION
IN THE STATE OF NEW YORK
BY SIDNEY SHERWOOD, PH. D.

CORNELL UNIVERSITY. AN HISTORICAL
SKETCH OF ITS FIRST THIRTY YEARS
1868-1898
BY ERNEST W. HUFFCUT. PAGES 318-425

WASHINGTON
GOVERNMENT PRINTING OFFICE
1900

in the prime of early manhood, the son of well-to-do parents, a brilliant university scholar; these men nevertheless worked together, and in entire harmony, to bring about the founding of the institution and to guide it successfully through its early years.

Some account of Ezra Cornell's life appears in the preceding pages of this volume. Andrew Dickson White was born November 7, 1832, at Homer, New York; and died at the President's House, Cornell University, November 4, 1918. His ancestors were members of a group of New Englanders that came at the close of the eighteenth century to live in the "Military Tract" in western New York, which included the region about Homer. As he said himself, they were all "good stock," but added that he never found time to verify the tradition, of the truth of which he had doubts, that his father's people were descended from Peregrine White of the Mayflower. His paternal grandfather had been the richest man of the township, but, after a fire that swept away his uninsured mills, became one of the poorest and lost his health. Thus it fell to Andrew D. White's father, Horace White, a youth in his teens, to care for the family and retrieve its fortunes. This he did so well that he became one of the leading business men of the country and was made president of a bank in Syracuse. Young Andrew never knew poverty, everything about him was good and substantial though, as he says, the family mode of life was far from extravagant.

He was taken to a public school at three years of age because a colored servant, who wished to learn to read, slipped into the classroom with her young charge. Whether because of what he there absorbed, or because of a precociousness that would have led to the same result in any event, he

himself learned to read at the age of four. When he was seven the family removed to Syracuse and there the young scholar attended the public schools and at the age of twelve entered the Syracuse academy. In that school he came under a group of very good teachers and in his free hours developed a great liking for machinery. Later he entered a classical school, so called, and learned Latin and Greek. At this time he took up debating in a village club organized for that purpose and read Scott's and Dickens's novels. At seventeen he was sent to a small New York denominational college much against his own will. As the college with only forty students was in sore need of all the instruction fees it could collect, the authorities hesitated even to offend a student; a fact well known to the undergraduates themselves. In consequence, President White says, more dissipation and wild pranks occurred at this "church college," that boasted of its Christian influence on its students, than he ever even heard of at all the half-dozen large universities in America and Europe with which he was later connected. One of the diversions was rolling cannon balls along the corridors at midnight, with easily imaginable results in the way of din. A tutor who had captured and confiscated two of the balls one night, essayed to secure a third on the following night, jumping out from his door, but this one had been heated to nearly redness and started from a shovel. As a result the poor fellow wore bandages for many days.

In 1850, having been sent back to this college,

after vainly pleading to be allowed to attend one of the larger New England universities, he found the life so distasteful that he deliberately left it during the autumn term and took refuge with a former teacher, passing three months in study while hiding in the little village where this man lived. After Christmas his father relented and the young man was permitted to enter Yale University. At this institution the young scholar found himself in a much more congenial atmosphere, at least in so far as classmates were concerned. Whether this was because in the larger student body he naturally gravitated into friendship with those who had similar tastes, or whether the stricter discipline of the larger institution suppressed the riotous element among the undergraduates does not appear. In any event, many of his friends at Yale later became eminent personages, an indication at an early age of his natural trait for aligning himself with those most worth while. But with methods of instruction at the Yale of this period he was discontented. Collegiate education then tended to follow classical lines, the course of instruction was fixed, exercises consisted for the most part in recitations heard by, at best, uninterested and bored tutor-instructors and classes were dull in the extreme. The professors themselves, able men in general, were difficult of access, and their worth-while, lecture-instruction was in general discounted by the dry-as-dust recitations they countenanced and, indeed, conducted in person in certain instances. All studies were neglected that did not affect

"marks" and "standing." All this Mr. White calls the "Yale System."

Despite these handicaps, the undergraduate, Andrew D. White, found inspiration at Yale, and very shortly acquired distinction as a student by winning various literary and oratorical prizes with essays on political and historical subjects. That he was not altogether a grind is indicated by the fact that he was coxswain in the first eight-oared boat race between Yale and Harvard.

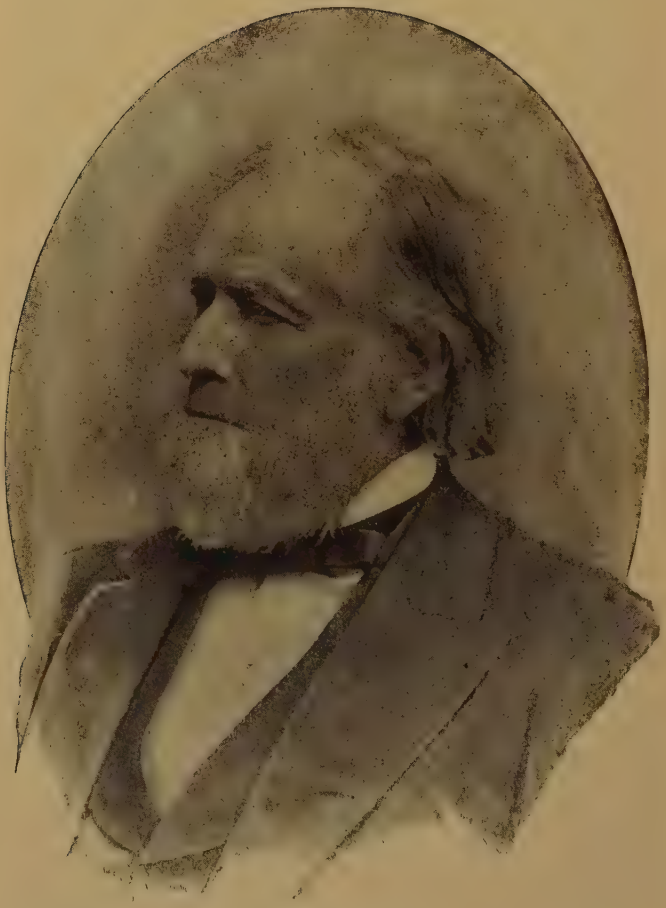
A reflection of almost every one of these early experiences and phases of President White's life may be found in the institutions, organization, and customs of the present-day Cornell University. He seems to have tried to incorporate every influence for good that he encountered; for what was bad he substituted something different, untried often, but at least of such nature as to avoid the evils with which he had become familiar. At the age of twelve he was able to play a church organ; due to his influence and generosity there are now two magnificent pipe organs at Cornell. At the same age he had great interest in all kinds of machinery —hence the sympathetic attitude he displayed in the development of the engineering colleges. Art and architecture felt his fostering influence because at ten occurred what he terms an important event, the gift to his mother from his father of a handsomely illustrated volume "The Gallery of British Artists," which the boy never tired in poring over. Because he found the "Christian influence" of the up-state denominational college he attended a

farce, Cornell is nonsectarian in its governing body and faculty, though far from irreligious, as early detractors vociferously asserted. The rowdy behavior of students he believed largely due to failure to provide some outlet for the physical energy of young men; to this and his own rowing experience is owing the present magnificent standing of Cornell in athletic sports. His early good training in English, his personal interest in history, politics and the classics are apparent in the strength and ample provision made for such departments in Cornell.

After being graduated at Yale, President White spent nearly three years in Europe. Here he perfected his knowledge of French by living for a year in a French professor's family and by attending lectures at the Sorbonne. In 1855 and 1856, he mastered German in the same way at Berlin. Between times he had traveled widely on the continent and in England and had been for six months an attaché of the American Legation at St. Petersburg. His studies, meanwhile, continued along historical lines; he gained an insight into European political and social conditions at first hand, and also made himself acquainted with the workings of many European universities.

Returning to America in the spring of 1856, he took the master's degree at Yale "in course," and at the commencement exercises heard President Wayland of Brown University advise that "the best field of work for graduates is now in the West." The presidential election of that year found him deeply interested in politics, primarily as an advo-

Andrew D. White



Henry W. Sage

cate of the anti-slavery cause. In this connection, while a resident graduate at Yale in the following winter, he delivered a lecture on "Civilization in Russia," an indirect attack on slavery in the United States. This interest in politics led him to visit Washington in March, 1857, on the occasion of the inauguration of President Buchanan. Politics as practised had been repulsive to him; shabby, dirty Washington of the slave régime absolutely disgusted him. There seemed some prospect of a professorship in history at Yale, but this failed to materialize; hence, impressed by Wayland's remarks on the opportunity in the West, he eagerly accepted a professorship in history and English literature offered him by the University of Michigan, where he arrived in October, 1857. At Michigan he came in contact with energetic western students, who put him on his mettle to keep up with them in discussions, the incentive, as he modestly says, for a period of intensive study. Then came the Civil War period. President White volunteered, was refused on account of his health, accordingly put his energies into securing the training of others for the army, later went to Europe to promote the cause of the North, and in 1864 returned to America. Shortly afterward he received a telegram in Boston that he had been nominated to the New York State Senate; and he was, in due course, elected. This position he had in no way sought; it had come to him altogether unsolicited, a fact in itself quite noteworthy in the annals of American politics.

Of such wealth in training and experience, then, was the young man, just thirty-two years of age, that Ezra Cornell met as a colleague in the State Senate at Albany in 1864. When first Ezra Cornell's name was called, President White says, he was immediately interested in the man and observes that he seemed "about sixty years of age, tall, spare and austere, with a kindly eye, saying little, and that little dryly. He did not appear unamiable, but there seemed in him a sort of aloofness." What Ezra's first impressions of the young Andrew were is not recorded but no doubt they would furnish an equally pithy characterization.

That these two men, so utterly opposite in age and experience, of whom the one had attained great distinction by scholarly achievement and right thinking so early in life, and the other gained wealth and influence only after years of toil and vicissitude, should later have been so steadfastly associated in the grand adventure of founding Cornell is a matter of fascination; that they were brought into intimate relations almost immediately after their meeting in the senate seems more than a coincidence.

On the organization of the senate, Mr. Cornell and Mr. White were each made chairman of a committee, Mr. Cornell on agriculture, Mr. White on education. There was certainly no obvious connection between these two groups, yet among the first things to be referred to Mr. White's committee was Mr. Cornell's bill to incorporate a

public library at Ithaca that Mr. Cornell proposed to found. This bill greatly interested Mr. White because it included among the trustees representatives of all the interests of the town, Mr. Cornell's political opponents as well as his friends, and the pastors of all churches, Catholic and Protestant, and provided for the endowment of the institution his, Mr. Cornell's, gift of one hundred thousand dollars, a quite munificent sum for a library for a small town in those days. Since such ideas were wholly in accord with Mr. White's own convictions, it was only natural that their conferences in regard to the bill soon established a friendship that continued unbroken until Mr. Cornell's death, and that the library was established substantially as proposed by Mr. Cornell, the bill having Mr. White's hearty support until it became a law.

That these two men should have been brought together immediately after Mr. White's entrance into the senate is noteworthy, but that almost the next circumstance should bring their committees, hence their several leaderships, into close relations is no less than remarkable, and has a dramatic interest for all Cornellians, for unless this had taken place Cornell University would never have been founded, nor would any institution equivalent to it have been developed in New York State. Of the same singularity are the circumstances that both Mr. White and Mr. Cornell had spent their boyhood days at points in central New York separated by only a few miles, that their paths and experiences had then been of so widely different nature,

and that now the most intense interests of each were again to revolve around a narrowly restricted area of the same part of the state in which each had spent his early days. If, in an atlas, the towns of Homer, DeRuyter, Cortland, Geneva, Moravia, Ithaca, Syracuse, Havana and Ovid on the map of New York State are encircled with a pencil-line, there is presented the small region in which their youthful undertakings and those of manhood's prime were centered; while if from this area, on a world map, widely divergent lines, extending on the one hand north and south to Maine and Georgia and west to Wisconsin; and, on the other, east to Yale, to England, France, Germany and Russia, are drawn, it will be appreciated how far apart, geographically, as well as in interests, their lives between these periods had been.

To understand the situation that brought Senator Cornell's committee on agriculture into direct relations with Senator White's committee on education, it is necessary to go back a few years and to become acquainted with the facts connected with the passing of the Morrill or Land Grant bill of 1862 by the Congress of the United States and the subsequent action on this law by the New York State legislature. That such a measure was passed at a time when the country was involved in civil war is in itself remarkable. It proposed to endow at least one college in each state with public lands to the amount of thirty thousand acres for each senator and representative in Congress and provided that the object of such colleges or college

should be "without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." This act entitled New York State to "scrip" representing nine hundred eighty-nine thousand nine hundred and twenty acres of land, as no scrip was issued for less than one hundred and sixty acres. To realize on this it was necessary that the scrip be sold, as no state was permitted to locate lands in another state, and there were no public lands in New York State subject to entry. As other states were in the same plight, and as public lands of wide extent were subject to entry by any one at one dollar and a quarter per acre the selling price of the Land Grant scrip at best was only eighty-five cents per acre and it soon declined to sixty cents, with a poor market.

Nevertheless it must be remembered that the portion that fell to New York, owing to its large representation in congress, was the largest received by any one state, over one-tenth of the whole; and in actual extent, if measured in contiguous territory, of princely domain. Thus it exceeded the total area of the state of Rhode Island by some three hundred square miles.

On May 5, 1863, the state legislature formally accepted the grant and authorized the comptroller

to sell it and to invest the funds in bonds bearing interest at not less than five per cent. At the time Cornell University was granted its charter, the comptroller had sold seventy-six thousand acres and estimated that the whole could be disposed of so as to yield an annual income of forty thousand dollars. By this statement one may measure what Ezra Cornell secured for the university by his business shrewdness and personal efforts over and above what he gave of his own fortune.

On May 14, 1863, the whole of the New York State grant was voted to the People's College of Havana, New York, through the efforts of state senator Charles Cook, patron of this institution. The People's College today is Cook Academy, a preparatory school, for its founder was liberal only in what he wished to get for the institution. The original People's College was projected to teach practical sciences essential to agriculture and the useful arts, to provide labor for its students, men and women, and to require both students and faculty to labor from ten to twenty hours each week. It had not been opened when the Land Grant endowment was bestowed on it, and at the time when it finally lost the grant had property valued at seventy thousand dollars only, though it had had two years to comply with the terms of the gift, namely, that it have ten competent professors and suitable buildings and equipment for the teaching of two hundred and fifty students. Another condition of the charter was that the institution was to be free of all encumbrance yet the

so-called donor, Mr. Cook, could not be induced to cancel a mortgage of some thirty-one thousand dollars that he held on its property. Nevertheless, he did not hesitate to try, in the session of 1864, to get the whole of the grant for his institution without any pledges whatsoever on the part of the People's College.

A bill to repeal the grant to the People's College was introduced in the senate, in 1864, but failed to pass. Then Mr. Cornell introduced a bill to divide the Land Grant fund between the People's College and the New York State Agricultural College at Ovid, where now is located the Willard Asylum for the Insane, a place about twenty miles distant from Havana, the site of the People's College. The State Agricultural College was sponsored by the New York State Agricultural Society, and had been incorporated in 1853 by the legislature under an act providing that, on condition that an equal sum be raised by private subscription, the state was to loan the institution forty thousand dollars for twenty-one years without interest. By 1858, an estate of over six-hundred acres overlooking Seneca Lake had been secured and in 1860 a building had been erected and the institution opened with a class of some fifty students and a faculty of five men. With the outbreak of the war, in 1861, however, the institution was closed and had not been reopened in 1864. Of this college Mr. Cornell was a trustee.

Mr. White immediately opposed Mr. Cornell's proposal to divide the Land Grant fund, on the

ground that it should not be frittered away, and, on Mr. Cornell's trying to have the bill referred to his own committee on agriculture, insisted that it should be referred to the committee on education with the result that the senate referred it to their joint committees. Then during the entire session Mr. White deliberately thwarted any report on the bill. In the following summer Mr. Cornell invited Mr. White to attend a meeting of the State Agricultural Society, of which Mr. Cornell was then president, and there proposed a new bill granting the State Agricultural College an income of thirty thousand dollars from the Land Grant fund on condition that it have an independent endowment of three hundred thousand dollars which he himself offered to provide. To the disgust of the audience, Mr. White again objected, this time urging Mr. Cornell to ask for the whole Land Grant fund and add to it his proposed gift. No definite action seems to have been taken.

In 1865, when the legislature met again, Mr. Cornell, after an earlier conversation on the matter, came to Mr. White and said he had come to the conclusion that Mr. White was right, the Land Grant fund ought to be kept together, that he now proposed to found a new institution that should have all of it and that in addition he would give a site and five hundred thousand dollars instead of the three hundred thousand he had offered at Rochester. To this proposal a number of the friends of both the People's College and the State Agricultural College quite enthusiastically acceded

later, among them Horace Greeley, long a trustee of the former institution.

Under these conditions it would appear that the new institution, the future Cornell University, ought to have been started with great acclaim. But there was to be no plain sailing at this time or for a long time after. On February 4, 1865, Mr. White introduced a bill to establish The Cornell University at Ithaca, New York. The location at Ithaca Mr. Cornell insisted upon, though Mr. White would have preferred Syracuse. But although he insisted on the Ithaca site, the founder was dubious in regard to calling the institution after himself, suggesting "Ithaca State College" or something of that nature. Only after it had been pointed out that nearly every great eastern institution was named after its chief benefactor did he yield. Then began the struggle. On February 4th Mr. White introduced a resolution requesting the Board of Regents to inquire into the condition of the People's College. On the 7th he further introduced a bill incorporating The Cornell University and endowing it with the whole of the Land Grant fund. This was referred to the joint committees on agriculture and education. On the 15th the Regents reported that the People's College had failed to qualify. On March 9th the Cornell incorporation bill, after having been reported and recommitted to the joint committee, was again taken up in Committee of the Whole and then amended to so as to give the People's College three months more to offer a cash deposit of one hundred

and eighty-five thousand dollars in lieu of the earlier conditions. As amended it passed the senate by a vote of twenty-five to two on March 16, 1865.

In the assembly the bill was referred to the committee on colleges, academies and common schools and the committee on agriculture jointly. Meanwhile the forces in opposition were rallying. A number of smaller colleges, all with some influence in the legislature, pressed claims for some part of the Land Grant. Mr. Cook of the People's College, bitter because his project had failed, employed a lawyer to oppose the Cornell bill in committee, and this man sought to bring the Cornell scheme into suspicion and contempt. He called it a "job," "grab," "monopoly," "a wild project," and said Mr. Cornell was planning to rob the state, that he was a vain and selfish speculator, "seeking to erect a monument to himself," and insinuated that those associated with him were either dupes or knaves. But the bill was nevertheless forced out of committee by its friends, after about a month, and considered in committee of the whole. The friends of Genesee College at Lima proved especially strong and forced an amendment that in addition to giving Cornell five hundred thousand dollars Mr. Cornell was also to donate twenty-five thousand dollars to Genesee College. This amendment Mr. Cornell accepted and in this form the bill was passed April 21, 1865, but only after Mr. White and others stood in the cloak room and fairly shamed waverers, afraid of their small college

constituents, to vote as their consciences and the best interests of New York State dictated. The indignity of the amendment, however, caused so much disgust in the state, when it became generally known, that in 1867 the legislature passed an act refunding the twenty-five thousand dollars, not to Mr. Cornell, for he would not accept it, but to Cornell University. The People's College having failed, in the time allowed, to furnish the one hundred and eighty-five thousand dollars required by the legislature to secure to it the Land Grant, the great endowment came, after such struggle, into the undisputed possession of Cornell.

Not satisfied with what he had already done, Mr. Cornell, immediately after the university was assured, gave to the trustees of the institution his farm of two hundred acres, after it had been unanimously agreed that this was by far the best site for the campus in the neighborhood of Ithaca. Then, as a business man, realizing that the money to be secured from the sale of the Land Grant scrip by the state would be but a meagre sum in comparison with what might be obtained by judicious action on part of a corporation or individual, he set about augmenting it in characteristic fashion. The state could not locate lands in another state, the university needed all its funds for buildings, equipment and expenses. Accordingly Mr. Cornell sought private aid with a view to the purchase of the scrip from the state and the location of lands that would sell at a great advance in a few years. In this he was unsuccessful, no one dared join him. Then he

determined to bear the whole burden himself. In 1865 he secured permission to buy one hundred thousand acres at fifty cents an acre on condition that all profits resulting from the future sale of the land should come to Cornell. In 1866 an act was passed in the legislature authorizing the comptroller to sell all the remaining scrip to the trustees of Cornell University at a price not less than thirty cents per acre, or if they would not take it, then to any person who would pay to the state all the net profits of the transaction. The trustees had no funds, hence Mr. Cornell proposed that he would buy the remainder of the scrip at the thirty-cent rate and from the profits of its sale pay thirty cents more per acre to the state; the sixty cents per acre realized in this way, together with the funds from previous sales, to constitute the Land Grant fund and be subject to its restrictions in the expenditures of Cornell University; the balance of the profits to constitute a separate fund, known as the Cornell Endowment Fund, and to be free from such restrictions. This proposal was accepted and Mr. Cornell purchased the balance, the remaining eight hundred thirteen thousand nine hundred and twenty acres of scrip.

Reverting then to the toilsome personal industry of his early years for the benefit of the new university, Mr. Cornell undertook the gigantic task of locating this vast acreage, and actually succeeded, in the course of a few years, in taking up over five hundred thousand acres, mostly in fine timber lands, in Wisconsin, Minnesota and Kansas. In

addition to the personal labor this involved, it was necessary for him to advance for the original purchase, for services, taxes and interest another five hundred thousand dollars over and above the original endowment of the same amount that he had provided. Before 1870 the value of the scrip was so much enhanced that it was possible to sell some three hundred thousand acres of the part not located at about one dollar per acre, but this was done against Mr. Cornell's judgment. At another time, when he was urged to sell a portion of the lands at a sacrifice, he said in effect, "No, I will wear my old coat and hat a little longer and let you have a little more money out of my own pocket." In October, 1874, several months before Mr. Cornell's death his holdings were transferred to the university. With this transfer all the costs of their purchase and upkeep were of course also put upon the institution and it entered into a period of financial stress that was almost as great as that borne by the founder in his later years and which undoubtedly hastened his death. Before 1881 nearly four hundred thousand dollars had to be taken from the productive funds of the university to pay its own expenses and carry its lands. It was indeed a land-poor institution at that time. But, fortunately, Mr. Cornell's successor in the management, the chairman of the board of trustees, Mr. Henry W. Sage, had knowledge of timber lands and faith equal to that of the founder, and in the face of bankruptcy, held on. Thus in 1881 and 1882 the university was able to realize two million

three hundred thousand dollars from the sale of one hundred and forty thousand acres of the land.

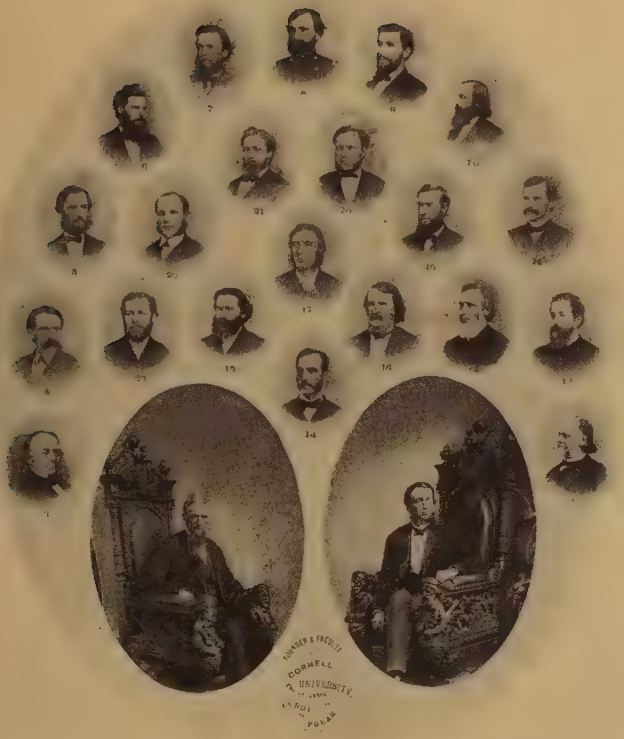
This cleared the financial skies, and it is consequently unnecessary, here, to follow the history of the Land Grant farther. But to emphasize the sagacity of the founder it should be noted that from a federal gift that was expected originally to yield an annual income of only forty thousand dollars, Cornell University has realized over five and one-half million dollars which in 1915 brought an income of over two hundred and fifty thousand dollars. Ezra Cornell sowed one to reap ten.

It will readily be understood that the attacks on Mr. Cornell and his institution when it was first sought to secure all the Land Grant for Cornell did not grow less bitter or decrease in volume as the new university got established and the founder began his land-locating operations. The latter were in themselves calculated to arouse suspicion on part of those who have little faith in the honesty of purpose of any man, and to give opportunity for the slanders of the invidious. A shrewd business man intrusted with a state resource that might be made to yield millions—was it natural to expect that he would not himself profit enormously? And the fundamental innovations of the institution itself aroused the antagonism of many honest but conservative people. The public relies on its own inertia to crush the individual reformer, and generally succeeds, but any reform or change backed by great material resources it fears and hates.

In 1869 a Rochester paper published an editorial article asserting that Mr. Cornell's land-scrip operations were one of the most stupendous jobs ever "put up" against the state and asked "what becomes of the twenty-three million dollars that will be realized on these lands? They will go to the Cornell family. Mr. Cornell will sell the lands to a company of which he is chief, fixing his own price, and his company will make twenty-five to thirty million dollars." This attack Mr. Cornell answered simply by explaining in full his dealings and in conclusion, adding, that he had lived in the state sixty years, had had personal and official relations with a great many of his fellow citizens and would leave to their judgment on the editors and himself the onus for the epithets "swindler" and "corruptionist." This by no means put a stop to the slanders, and when, in 1873, a bill was introduced for a settlement between Mr. Cornell and the state, the occasion was seized by the representative from the district of the People's College for an especially vicious attempt to besmirch Mr. Cornell, by denouncing him once more as an unscrupulous and iniquitous land grabber. This speech created a sensation and was widely quoted by the press. Mr. Cornell at once requested by telegraph an investigation by a commission of citizens. After an exhaustive examination not only of Mr. Cornell's dealings, but of the whole conduct of the university, this commission reported that no single fact indicated that Mr. Cornell had sought to gain any pecuniary advantage for himself or his

family and that while some witnesses objected strenuously to the conduct of the business between the state and Mr. Cornell and the objects he sought to achieve, all disclaimed any purpose to charge that he had enriched himself. This complete vindication finally allayed the general abuse. An exception was the Rochester newspaper that had been too sorely wounded to quit and continued to assail Mr. Cornell up to the year of his death.

The institution fared no better. Mr. White, while he had gone so far as to draw up a "plan of organization," had no idea of becoming its first president. His duties as president of a bank, director of several others, and of sundry corporations; as senator of New York State and lecturer at the University of Michigan, seemed to him sufficiently varied and involved without adding any further burdens. When nominated for the position by Mr. Cornell, he was greatly surprised and only consented to serve with much reluctance. A wiser thing than his election to the presidency has seldom been done. By this act the flood of ideas that Mr. White in his years of experience as student and teacher had been gathering, was permitted to flow unhampered over the dry-as-dust system of university education that had so long prevailed in the United States; a flood that was to irrigate and bring the field to a new fruitfulness, not only at Cornell, but elsewhere as well. This very freshness, however, made the new institution a bright target for self-appointed critics and brought also a variety of other troubles.



The First Faculty

Picture reproduced by courtesy of B. S. Monroe

1. Hon. Ezra Cornell, Founder
2. Hon. A. D. White, President
3. Prof. Louis Agassiz
4. Prof. C. Fred Hartt
5. Prof. Eli W. Blake
6. Prof. James Law
7. Prof. Lewis Spaulding*
8. Major Joseph H. Whittlesey
9. Prof. Burt G. Wilder
10. Prof. Wm. C. Cleveland
11. Prof. Evan W. Evans
12. Prof. D. Willard Fiske
13. Prof. Theodore W. Dwight
14. Prof. Goldwin Smith
15. Prof. James R. Lowell
16. Prof. Wm. C. Russell
17. George Wm. Curtis
18. Prof. Rev. Wm. D. Wilson
19. Prof. John L. Morris
20. Prof. Ziba H. Potter*
21. Prof. Homer B. Sprague
22. Prof. James M. Hart*
23. Prof. George C. Caldwell

Names as listed by photographer except for corrections in spelling and initials. Also those marked * were assistant professors, and of these, Thomas F. Crane is omitted, as well as Albert N. Prentiss, James M. Crafts and Albert S. Wheeler, full professors, as given in a list by Dean Huffcut, while the name of Lewis Spaulding does not appear in Dean Huffcut's list.

Sage Chapel

Learning by rote with dull recitations was to be put in the background. The brightest young students of the most eminent scholars were to constitute the resident faculty. This faculty in turn, as well as the student body, was to be inspired by lecture-series given by eminent nonresident professors. Instead of a rigidly prescribed course, the student was to have the widest possible latitude in his choice of studies. Students in classical courses were to meet and work with students in the agricultural and mechanical colleges, all were to be equal in dignity and standing in the university community. Mr. Cornell had said "I would found an institution where any person can find instruction in any study." Ambitious and energetic students lacking the necessary funds for pursuing a college course were to be provided with an opportunity to labor for their self-support. The charter of the university provided for one scholarship to be awarded annually in each assembly district of the state, entitling the holder to free tuition for four years. Co-education was implied, though the institution did not at first definitely commit itself to admit women. The students were to be considered as responsible citizens; faculty members were not to act as policemen. The institution was to be strictly nonsectarian—"at no time shall a majority of the board of trustees be of any one religious sect or of no religious sect;" "persons of every religious denomination or of no religious denomination shall be equally eligible to all offices and appointments." The trustees were not to be appointed for life, but

only for five-year terms, they were to be chosen by ballot and the alumni, eventually, were to select one-third of their number. No honorary degrees were to be conferred.

While these ideas are old now, and have in many instances been adopted elsewhere, they created a great commotion then, as may well be imagined if one will picture the stir that would result if an equal number of radical departures were proposed by some foundation of the present time. Before Cornell came into being, universities existed almost solely for the professional and social classes. The union of literary and practical studies upon an absolute equality, with liberty of choice on part of the student in the one field or the other or both was the fundamental feature of the "Cornell Idea," and those in authority at the older institutions immediately declared that the experiment was foredoomed to failure. Charles W. Eliot, himself later president of Harvard, gave it [Atlantic Monthly, Vol. 23, p. 215] as his deliberate judgment that the practical spirit and the literary and scholastic spirit were incompatible within the same walls. Others were not so restrained in their statements, one of the leading New York city newspapers repeatedly charged President White with "degrading classical studies." When, however, a few years after the opening of the university, intercollegiate contests in Latin, Greek and mathematics were staged and Cornell took more first prizes in these subjects than did all the older institutions together, the talk of degrading the classics somehow died out.

The idea of providing labor for self-support of students led to other difficulties—many of them quite comical as they now appear. During President White's absence in Europe for the purchase of equipment and securing a faculty, the founder took it upon himself to write a letter to the New York Tribune announcing that students could support themselves while pursuing their studies one-half of each day in the university by laboring the other half. Had President White been consulted he probably would have pointed out that the average student hardly marks up to Ezra Cornell stuff in earnestness, endurance and capability for self-sacrifice. As a result of this letter a lot of eager applicants came on at the opening of the university and insisted on being provided with work. Those who were able to perform any sort of skilled labor were employed readily enough, but many had not even done any manual labor. It was shortly found that it would be cheaper to support most of these at a hotel and to employ day-laborers in their places than to let them go on "working." Thus the husking of the corn from the university farm by student labor was found to cost more than the corn could be sold for in the market! One man came all the way from Russia, had in fact to depend on charity to make the last stages of the journey, and on arrival was found to be utterly incapable of sustained effort of any kind, mental or physical. The most definite aim he seemed to have was to convert the United States to the Russo-Greek church. Others, good scholars, but unable

to do even the lightest tasks in caring for the university grounds, wrote bitterly to the metropolitan journals denouncing Mr. Cornell's bad faith. Of like nature were the troubles that arose from the motto, "I would found an institution where any person can find instruction in any study." A western teamster offered his services, and on being asked what he wished to study said he wanted to learn to read! Of course he was very indignant when told that the public school was the place for him. All these reminiscences and many others of similar nature, are recounted by President White in his "Autobiography," and in his own inimitable and fascinating way.

A paper at a rival college said that the "optional" course at Cornell must be a very hard one, and referred also to the probable undergraduate pleasure in taking courses under "nonresident professors." In another sense, it was perhaps this kind of a professor from Cornell that made necessary one of the few faculty interferences with student self-government. Various complaints had been made against a stalwart New England student and finally he was summoned before the whole faculty, solemnly assembled around a long table. The culprit was brought in, and after evading various questions with great ingenuity he was asked, "Mr. ——, did you, last month, in the village of Dundee, Yates County, pass yourself off as Professor —— of this university, announcing a lecture and delivering it in his name?" He answered calmly, "Sir, I did go to Dundee in Yates County,

I did deliver a lecture there, I did *not* announce myself as Professor —— of Cornell University; what others may have done I do not know; all I know is that at the close of my lecture several leading men of the town came forward and said they had heard a good many lectures given by college professors from all parts of the state and that they had never had one as good as mine." President White says he had difficulty in restraining himself, the faculty were plainly in the same condition, the youth was hurriedly dismissed, and the faculty enjoyed a hilarious laugh and the culprit was troubled no further. It must not be supposed that women have only become militant since they have made suffrage a pertinacious political issue. When women were admitted it was feared that a great deal of "spooning" would result. Quite the contrary proved to be the case. What did make trouble in later days was the "lady" warden and the rules of Sage College, the women's

NEAR SAGE COLLEGE

dormitory. Again and again committees came to the president insisting that there should be no lady warden, that the women should be free to go every hour of the twenty-four as were the men. This led in time to a Women's Self Government Association which continues into the present. It is quite possible that some of its regulations of conduct are more severe than were those imposed by the "lady" warden of earlier days.

If the "Cornell Idea" of great liberality in choice of study and combination of classical and practical courses provoked criticism, the notion of a nonsectarian control and pulpit may indeed be said to have started a storm, primarily because the denominational colleges feared the competition of Cornell. For years Cornell University was denounced as irreligious, and as a godless institution. Yet all the public schools of the state were, and are, similarly wholly free from denominational control. The charge of irreligion was groundless. At first, simple religious exercises were conducted each morning except Sunday in a classroom, attendance at which, though voluntary, was quite good. To provide for Sunday services, Henry W. Sage offered to build a chapel, one of his sons endowed a preachership fund, another provided a fine organ. The chapel was erected and the preachership endowed under the conditions that services should never be given over to any one sect and that attendance be voluntary. On the establishment of such Sunday services the attacks on Cornell changed from accusations of godlessness to

that of "indifferentism." What really irked the sincere churchmen seems rather to have been Cornell's "undifferentiationism" (a word not much more awkward than indifferentism which they might have coined); if so, it indicates the narrowness of some of the clergy in a time not long past.

SOUTH SIDE OF SAGE CHAPEL

In any event Cornell's system of religious instruction bids fair to become the prevailing one in the universities of our country.

Invitations to preach in the chapel were accepted by eminent clergymen of all Christian denominations but those of the Roman Catholic faith. That the latter have not sent some of their learned divines continues to be regrettable. A distinct effort was made to keep out all sensational preaching, the chapel was not to be a place for amusement or "for ground and lofty tumbling by clerical performers." This ideal should command the attention of those who under other auspices

and a different roof have in late years brought reformed train robbers, and, if one may put it that way, a reformed baseball player to give religious addresses at Cornell.

Having followed so far the history of the intellectual and moral concept of the university it remains now to go back to the opening day of the new institution and gain an insight of its material and community status and development.

It was indeed, as Ezra Cornell truly said in his speech on the opening day, October 7, 1868, not to see a university finished but to see one begun that the guests had been invited. Perhaps an exception should be made of the two creators of the institution, they were indeed "done" at the time. Mr. Cornell, from his labors in locating lands, Mr. White, from travel in Europe securing materials; both from the arduous toil of preparation for the opening, were worn out; and had been under care of physicians and in bed for two or three days before the inauguration. On the appointed day they had to be taken in carriages to Cornell (Ithaca) Library Hall where the morning exercises were held.

Mr. Cornell, unable to stand, read his address in a low tone, seated in a chair. It was a very impressive scene and almost incapacitated Mr. White, also worn by illness, from speaking after him. Their two addresses embodied the whole spirit and purpose of the university, ideals that have since all been practically realized. Mr. Cornell's words: "I hope we have laid the foundation of an institution which shall combine practical with

liberal education, which shall fit the youth of our country for the professions, the farms, the mines, the manufactories, for the investigation of science, and for mastering all the practical questions of life with success and honor," and Mr. White's elaboration as to how this was to be done; pledging the university to a policy that should unite liberal and practical education under perfect equality among widely differing courses of study, declaring war on pedantry and Philistinism, provide an epitomized statement of all that has been since accomplished.

But of material possessions little was visible then. The only building for instruction, Morrill Hall, was unfinished, Cascadilla Hall, which was to be the home of many of the faculty and students, had no doors on many of the rooms and no heating apparatus. The beautiful campus of today was for the most part a ragged cornfield surrounded by rail fences. At the north end, where now is Sibley College, rickety barns and slovenly barnyards offended the senses. Between the Cascadilla building and the South University building, as Morrill Hall was then called, were two deep, unbridged ravines, Cascadilla Creek gorge and a lesser one that extended up across what is now the green between Sage College and the old Armory. Not even a completed road connected the two. Aside from the unfinished Morrill Hall, the only other university structure was a temporary wooden campanile in which hung a chime of nine bells, the gift of Miss Jennie McGraw.

Yet there were compensations. The day was perfect, the time that of Indian Summer and in the afternoon when the exercises were continued on the campus, there was spread before the audience a landscape clothed in all the gorgeous panoply of a deciduous-forest autumn, caressed by balmy breezes and bathed in hazy, golden sunlight. Not only that, but a view that embraced miles of hill and dale and the blue sheen of Lake Cayuga, a panorama that for variety and picturesqueness is unsurpassed by the site of any other university in the world. Hence, when at the close, George William Curtis, the orator of the day, burst into his peroration, comparing the university with a newly launched ship—"all its sails set, its rigging full and complete from stem to stern, its crew embarked, its passengers on board; and even while I speak to you, even while this autumn sun sets in the west the ship begins to glide over the waves, it goes forth rejoicing, every stitch of canvas spread, all its colors flying, its bells ringing, its heart-strings beating with hope and joy; and I say, God bless the ship, God bless the builder, God bless the chosen captain, God bless the crew, and, gentlemen undergraduates, may God bless all the passengers!" it is no wonder that the hearts of all those present swelled with emotion, and it was no doubt thought then, as now, that the bells of the chime ringing out for the first time put a fitting climax to a very notable occasion.

One interesting thing was the fact that a larger number, four hundred, of students pressed for-

ward for admission to the new institution on its inaugural day than had ever entered any college in the country as a single class. Four seniors, of whom Senator Foraker was one, left a Pennsylvania college with the express purpose of becoming members of the class of '69, first to be graduated from Cornell. The need for more buildings and equipment immediately became acute, indeed this has harassed the presidents and trustees from that opening day until now. In 1869, a large wooden building was erected as a temporary expedient, but, although permanent building after building followed, this wooden structure continued to house the latest overcrowded department until 1890, when it disappeared from the campus. In the fall of 1870, White Hall was finished, and in 1871, Sibley College, the gift of Hiram Sibley, was erected, and McGraw Hall, the gift of John McGraw, as well as President White's residence on the campus, were being built. At the laying of the corner stone of McGraw Hall in 1869, a local orator, inspired no doubt by the grand effort of Curtis at the inaugural said, "Fellow citizens, when Mr. Cornell found himself rich beyond the dreams of avarice, did he give himself up to a life of inglorious ease? No, fellow citizens; he reared the beautiful public library in yonder valley. But did he then retire to a life of luxury? No, fellow citizens, he came up to this height (here a great wave of the hand toward the vast amphitheatre below) and he established this *universe!*" As Goldwin Smith remarked to President White who had not caught

this, and to whom he repeated it. "There is nothing more to be said; no one need ever praise the work of Mr. Cornell again."

In 1875, both Sage Chapel and Sage College, the gifts of Henry W. Sage, were dedicated. Here it may be mentioned, that in actual money gifts Mr. Sage was the greatest benefactor among all those, not even excepting Ezra Cornell, who helped so generously in the early years. Mr. Sage's gifts eventually attained the grand total of one million one hundred and seventy-five thousand dollars, to say nothing of his services as trustee in conserving Ezra Cornell's land investments, so that when the student of the present day refers to Cornell buildings or other entities to which the name Sage is attached, it should not be lightly, but with the same sense of appreciation that pertains to the words Cornell and White. Moreover what Mr. Sage provided, he also provided *for* and generously, and thereby hangs a moral that other intending benefactors who may read these lines will do well to search out.

In 1883, Franklin Hall and the old Armory and Gymnasium were built by the trustees. Between 1885 and 1892, Barnes Hall, Morse Hall, Lincoln Hall, the University Library and Boardman Hall were erected. The placing of Morse Hall on the promontory extending from the northwest corner of the quadrangle was a mistake, for this site had previously afforded one of the finest views in this or any other country. The first university preacher to occupy the Sage Chapel pulpit, Phillips

Brooks, when standing on this spot was quite evidently overawed by the beauty of the scene spread at his feet. Happily this error will probably be soon effaced, but through what was for a time a distinct calamity, the almost total destruction by fire of the original Morse Hall, and subsequent additions, on the morning of February 13, 1916. Cornell has now the fine, new Baker Laboratory of Chemistry that occupies a site on the northeast corner of the campus, overlooking the quadrangle. But provision has been made for preservation of the view from this high point. Unhappily, however, President White did not live to see the original mistake in location of Morse Hall, which he greatly deplored, completely rectified.

The building of the University Library was the indirect outcome of the McGraw-Fiske will contest, another most dramatic episode in the history of Cornell, and again one that had a calamitous aspect. Miss Jennie McGraw, who gave the original chime of bells that were rung at the opening of the university, was the daughter of the John McGraw who provided McGraw Hall. At the death of her father in 1877 she inherited the bulk of his great fortune. About a year later Miss McGraw went abroad in search of health, and while on this trip was married to Willard Fiske, a professor of Cornell University and its librarian, at the American legation at Berlin, where President White was then residing as minister to Germany.

Just before her departure for Europe, Miss McGraw had given orders for the construction of

a magnificent mansion on a site just below the Morse Hall site, and commanding, like it, a most extensive prospect of the valley and lake below. This mansion she was destined never to occupy, for on returning to her home city, ill, in 1881, she lingered only a few days in sight of the towers of her new residence and on October 1st of that year passed away. The mansion was purchased later by the Chi Psi fraternity and, singularly enough, was, on December 7, 1906, like its neighbor, Morse Hall at a later date, destroyed by fire; a fire marked by what has been perhaps the most frightful tragedy in the history of Cornell, for it cost the lives of four students and three volunteer firemen of Ithaca.

The memory of this tragedy should be kept green, not only because of the many precious lives it cost, but also because it was the scene of deeds of heroism that must ever persist as shining monuments of Cornell spirit and utter sacrifice.

It was an icy-cold and black-dark December night. A gale of wind howled without, accompanied by fitful snow flurries, blinding while they lasted. At midnight, when the last man to bed of the inmates of the doomed structure had retired, there was no warning of the impending disaster; at forty minutes past three in the morning the whole mansion was enveloped in flames. How long before that the twenty-six members of the fraternity had been awakened by the smoke and flames no one knows, but when they first realized the fire all egress by the stairways had already been cut off. There were no rope fire-escapes, so that

the only hope of rescue lay in getting out on a window sill, and from there to the ground; or else climbing to the roof, and either climbing or jumping from that. The sleeping rooms were, in every case, filled with smoke when the men awoke; in some the flames were already gaining entrance; there was no time to secure any clothing.

Grelle, Pope, Uihlein and DeCamp first climbed to the roof. Their cries gave the alarm. On the roof they separated. DeCamp and Uihlein escaped by climbing down the vines along the outside wall for some distance, and then jumping to the ground. Pope and Grelle determined to try another route. Pope led the way across the roof to a place directly over the window of McCutcheon's room. Here Pope swung over and down, and kicked in the window. Flames immediately burst out and enveloped him. He let go his hold and fell to the ground. Then, recovering, he ran across the lawns to the Phi Kappa Psi house, about two hundred yards away, and aroused its occupants by his screams. Almost crazed by the pain of his burns, he collapsed as soon as the doors were opened. He was taken to the hospital later, and, although his life was despaired of for days, eventually recovered.

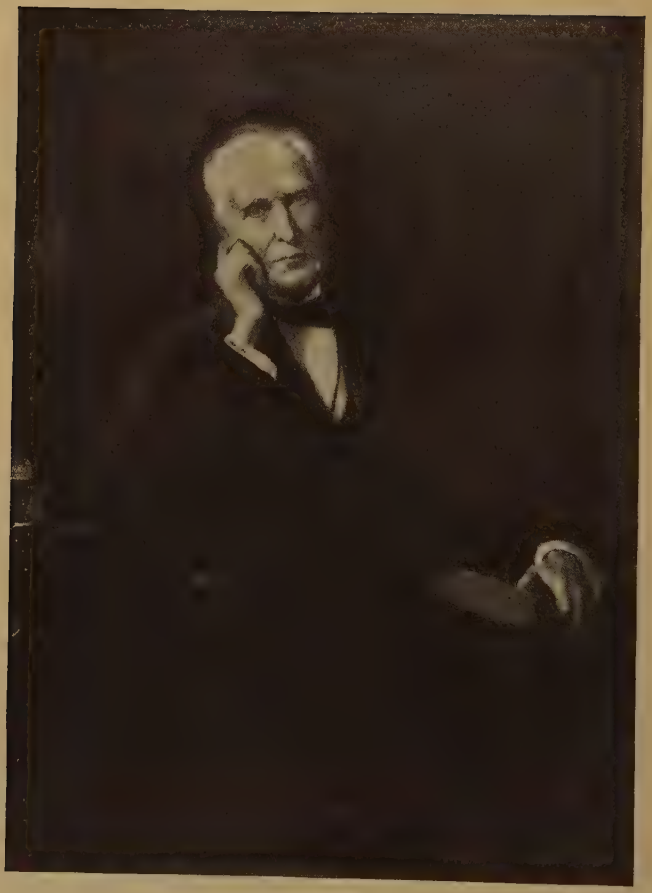
While Pope and Grelle were climbing over the roof toward McCutcheon's rooms, McCutcheon himself was being rescued by his roommate, Curry. Curry awoke to find the room filled with a dense smoke. Half unconscious, he broke out upon a balcony through a window, and after being revived there by the fresh air, returned to Mc-

Cutcheon, who was unconscious. He attempted to carry McCutcheon out, but failed, and barely succeeded in reaching the balcony again. Once more he tried, and this time managed to drag McCutcheon, whose night clothes were now in flames, to the window. Here he found himself exhausted by his efforts, and could not take the body to the balcony. But help had arrived. Halliday, Gibson and Goodspeed, men from the Alpha Delta Phi house, who had also been aroused by the cries of the men on the roof, had brought two ladders with them, and, climbing from these over the snow-covered slating, they secured McCutcheon at the window, and carried him to the ground. His burns were, however, fatal; he died in the afternoon of the same day, after only a few minutes of consciousness. Curry, after McCutcheon's rescue, reëntered the house for a third time, in a vain effort to find Nichols and Grelle, but, baffled by the flames and smoke, was compelled to give up, and, covered with cuts and burns, had to be assisted to the hospital.

Grelle was left behind on the roof after Pope had fallen to the ground. The flames from the window that Pope had kicked in, swept toward the roof and Grelle stepped back to escape their heat, only to fall into a skylight, from whence he dropped into a closet near McCutcheon's room. He was seen to come into the room from which Curry and McCutcheon had been rescued, and make for a window. Just as he reached it, the floor gave way and he disappeared from view. Death had claimed two victims.

McGraw Hall
One of the First Gifts to the University

In Baker Court



GOLDWIN SMITH

O. L. Schmuck, a senior, had made his way to the gutter of the upper roof, through a gable window, when he remembered that his roommate, W. H. Nichols, also a senior, was yet in the house. With the greatest fortitude, he reëntered the room, then a mass of flames, to save him. The task was hopeless, and with clothing in flames, Schmuck regained the window and dove through it to the ground, three stories below. His fall was broken by a bush, but he received injuries which caused his death in the hospital a few hours afterward. "He died indeed, but his work lives, very truly lives."

But the roll of death was not yet complete. The furious north wind, unabated, fanned the flames so that no amount of water could quench them. Only ruined walls, on the exterior, and a flaming mass inside, remained at six o'clock. At seven, most of the firemen and spectators had left the scene. But at that time three firemen were still directing a stream through a window on the north side of the ruin, when, without warning, the massive stone wall fell outwards, directly in the face of the wind, and crushed the three, Messrs. Rumsey, Robinson and Landon. Seven had now given up their lives and Death was appeased.

Today another structure occupies the site of the historic mansion, but the memory of the latter, its tragic end, and of the actors in that drama, can not be effaced. "The pride of the deed will remain after the bitterness of grief has passed, and every man with the stamp of Cornell upon him, will stand

straighter at the thought: They had tasted the flames, but they went back. *They went back.*"

When Mrs. Fiske's will was opened it was found that after giving her husband three hundred thousand dollars and making ample provision for those near and dear to her and a multitude of charities, she had left the university an endowment of nearly one and a quarter million dollars. Of this sum forty thousand dollars were to be devoted to providing a hospital for students on the campus; fifty thousand dollars were to be used for maintaining McGraw Hall, and the balance was given for building and endowing a university library.

This magnificent bequest was, however, for the time completely lost to the university. Two things prevented its acceptance, one that the university was chartered to hold only three million dollars endowment, and it already held funds exceeding that amount; second that Professor Fiske and Mrs. Fiske's relatives appeared as contestants of the will, the latter making claim under a conditional provision in her father's, John McGraw's, will. Mrs. Fiske's married life, though it extended only a little over one year (July 14, 1880 to her death October 1, 1881) had been very happy; and at first Professor Fiske joined most heartily in carrying out the provisions of her will. Later, however, Professor Fiske decided to fight the claim of the university to the bequests his wife had made. A decision by the Court of Appeals, made only a few years earlier, that might prevent the university from accepting the bequest, was also discovered at

about the same time. The case was carried to the Supreme Court of the United States but after seven years of litigation the estate was divided between Professor Fiske and the McGraw heirs. That Professor Fiske held no grudge against the university itself is indicated by the fact that on his death, September 14, 1904, it was found that he had willed over five hundred thousand dollars to Cornell for a library endowment fund, and he had, in addition, made other gifts during his lifetime. The charter of the university had, meanwhile, been changed by the legislature so as to remove all restrictions in regard to the amount of its endowment.

But before the contest over the will was finally closed Henry W. Sage again came forward and pledged himself to be responsible for the cost of a suitable library building, the university to repay him if it finally won the suit. On October 7, 1891, the library was formally opened, and as the case was then definitely lost, Mr. Sage at these exercises not only presented the university with the building but added also three hundred thousand dollars for a permanent endowment.

Any account of the early years of the university would be entirely inadequate if it failed to contain more than a reference to the nonresident professors. First and foremost of these, in distinction perhaps according to personal opinion, but certainly first in the value of his services to the university, was Goldwin Smith. As a matter of fact he can hardly be called a nonresident professor, for he lived at Cascadilla with the rest of the faculty and students

during the first year, and endured their privations (on date April 20, 1869, is found a memorandum on the business manager's notebook to the effect "Mr. White wishes a bell for Prof. Goldwin Smith's room to enable him to call servants without being obliged to hunt them up") and steadily refused to accept any compensation. It is true he could afford this last, but other professors equally able to give their services without charge have not always been so minded. If a later generation of the public has forgotten Goldwin Smith it only marks the difference between then and now. His espousal of the cause of the North during the time of the Civil War, almost alone among Englishmen, had earned him the deep gratitude of patriotic Americans. An observer (S. D. Halliday) relates that, when, on the night of the day of his arrival in Ithaca, Goldwin Smith entered the Cornell (Ithaca) Library hall to give his first lecture every one in the audience spontaneously rose and remained standing until he had taken his seat on the platform. At that time Professor Smith referred to the fact that he was an Englishman and was to lecture on English history but, he said, I will try to be impartial "for while I love England much, I love humanity more."

What must have endeared Goldwin Smith especially to his Cornell audiences was his humor, his fund of anecdotes, his dignity and the habitual fastidiousness of his speech. Yet, writing appreciatively in the "North American Review" Viscount Bryce tells this of his first meeting with Goldwin Smith at Oxford in 1861. "Drawing a chair

toward him, I sat down and waited. Presently he said, 'Of what did King John die?' I did not know and admitted my ignorance. 'He died of a surfeit of peaches and new ale' said the professor, adding in a reflective tone, 'it would give a man a considerable bellyache,' thereupon he proceeded to deliver in grave and measured accents, a discourse upon the Angevin Kings and their policy." Such was the man whom only the austere Ezra Cornell, however, was privileged to call "Goldwin."

GOLDWIN SMITH WALK

The other nonresident professors were Louis Agassiz, James Russell Lowell, George William Curtis and Theodore William Dwight, all famous names now, and men who must in their time have done much to make the institution seem a real university. Of Agassiz, who was then the foremost figure in natural science, it is related that once when driving near Forest Home he saw a strange bird flying into the woods. Jumping out of his

carriage, he called to a boy to hold his horse and then rushed pell-mell after the bird. A farmer coming along asked "whose horse?" and the boy answered "belongs to a crazy Dutchman who is down in the woods looking for a bird's nest." Agassiz spoke good English but on one occasion, at least, got a little mixed. A student, after one of the lectures in Library Hall (most of those by the nonresident professors were given there) evidently of the mind that this natural science was approaching very nearly an attack on the Bible, stood up and asked, in effect, whether Agassiz really thought the world was made in six days. Agassiz had difficulty in understanding his questioner and asked him to repeat his query. Still he was in doubt, and the question was repeated again. Then in despair Agassiz said, "I do not mean what you understand." The audience laughed, but the great naturalist probably never knew why. Finally Agassiz was made to understand and he answered simply that "he did not regard the Bible as a scientific work on geology."

Such series of lectures have continued to be an attraction at Cornell down to the present time. The speakers are no longer appointed nonresident professors and the lectures given by any one man are usually fewer in number than was the case in the first years, though there are now several foundations that provide for an extended treatment of some topic. Probably the increased facility of travel and the greater numbers that can be reached in a Cornell audience of today, together with the

Some Early Admission Cards

UNIVERSITY FACULTY
October 23 1916

modern wider variety of interests, making it possible and profitable for a personage of national, or even international repute, to come to Cornell for only a single lecture, are responsible for this change. In fact the number of lectures and lecturers is now so great that the calendar of the week often scarcely affords them all room, and a person so minded could attain a liberal education at Cornell by simply attending free lectures by eminent personages in every field of art and science pure and applied. In such fashion then, have the original nonresident lectureships really perpetuated the old "Optional Course" that was formally abolished and disappeared from the curriculum in 1896.

The following programme for the year 1915–16 will give some idea of what is afforded, but it should be remembered that it includes only those lecturers who were officially invited by the university. In addition there are each year a multitude of lectures under the auspices of departments and various semi-official organizations.

NONRESIDENT LECTURERS, 1915-16

Thomas Hastings: Modern Architecture.

Frederico Alonso Pezet: Latin and Anglo-Saxon Races in America. Lecture on the Goldwin Smith Foundation.

L. Ward Bannister: Western Water Rights and Irrigation Law.

Moritz J. Bonn: Course in International Economics; Course in Economic Organization and Social Legislation in Germany. Lectures on the Jacob H. Schiff Foundation.

Charles Z. Klauder: Planning of the College Dormitory Group.

Dr. J. Estlin Carpenter: Christianity at the Parting of the Ways.

James Brown Scott: The International Court of Justice. Lecture on the Goldwin Smith Foundation.
Theodore Burton: 1915 and After.
A. Kingsley Porter: The Esthetic Appeal of Mediæval Architecture.
Lyman P. Powell: The By-Product of the Modern College.
Sumner Robinson: The Province of Interior Decoration; Interior Decoration and the Human Temperament.
Moritz J. Bonn: The Jew in German Business Life.
Major General Leonard Wood: Military Education in School and College.
Charles Wellington Furlong: Venezuela, the land of the Orinoco.
Benjamin S. Hubbell: Designing a Museum.
Jacob H. Schiff: Business.
William H. Taft: Our World Relationships and Preparedness; The Supreme Court and Popular Self-Government; The League to Enforce Peace; The Limits of Jurisdiction of the Three Branches of the Federal Government; The Presidency. Lectures on the Goldwin Smith Foundation.
John L. Elliott: The Citizen and Community Organization; What some great Americans have thought of Religion.
T. A. Daly: The Laughing Muse—A Talk on Current Verse in Dialect and Otherwise.
Rowland Haynes: The Citizen and the Recreation Needs of the Community.
John Martin: The Citizen and the Schools.
Victor Horta: The Nationality of Belgium and Its Influence Upon Her Architecture; Mediæval Architecture in Belgium; The Evolution of Renaissance and classic Architecture in Belgium in the Nineteenth Century.
Eugene T. Lies: The Citizen and Poverty.
John A. Fitch: The Citizen and Industry.
P. van den Ven: The University of Louvain.
Mrs. Kennedy Fraser: Songs of the Hebrides.
Selskar M. Gunn: The Citizen and Public Health.
Anatole Le Braz: Le Génie de la France.
Katherine Bement Davis: The Citizen and Crime.
Elmer S. Forbes: The Citizen and the Homes of the Community.
R. Clipston Sturgis: Architecture as a Universal Art.
Miss Frances A. Kellor: The Citizen and Immigration.

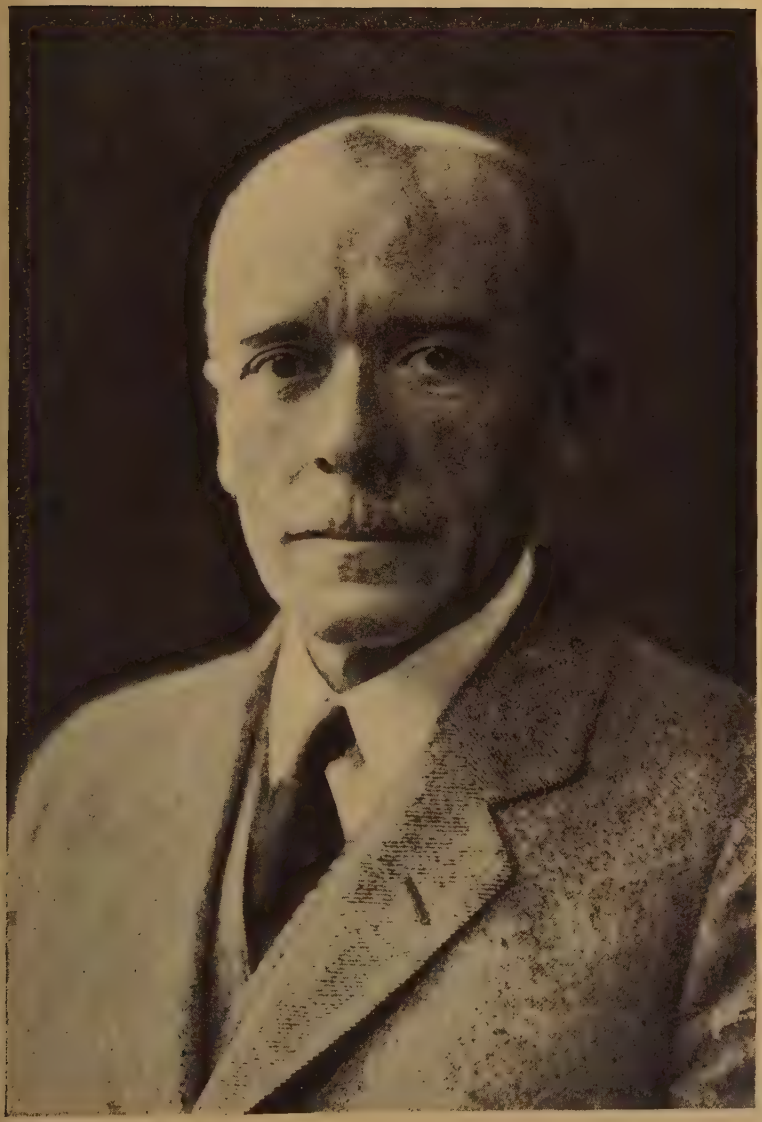
A. L. Brockway: The Architect and Citizenship; City Planning and the Architect.
Robert Studebaker Binkerd: The Citizen and the Physical Development of His Community.
Charles A. Beard: The Citizen and Public Service.
Rev. F. M. Crouch: The Church and Citizenship.
Dr. Henry M. Payne: Across Siberia.
G. Sarton: Introduction to the History of Science.
Dr. Thomas J. Headlee: A Successful Campaign against the New Jersey Mosquito.
Edward A. Moree: The Citizen and the Press.
Hon. Charles S. Whitman: Citizenship.
Alexander Meiklejohn: The Liberal College.

Curiously enough, the only one of the regular courses of study that gave the first administration difficulty in establishing firmly was the course in agriculture, the course, after mechanical arts, perhaps nearest the heart of the founder; those two being also the particular kinds of education that the author of the Land Grant bill, Justin S. Morrill, especially wished to promote; and by the provisions of that bill the initial impulse was given for the founding of Cornell University.

As President White says, from 1868 to 1873 in agriculture they seemed to be playing "Hamlet" with Hamlet left out. The question was should practical farming be conducted as a business operation, to teach students to get profits from the land; or as a model farm, regardless of balance sheets, having in mind only methods; or on a wholly experimental basis. Several professors of agriculture tried their skill in solving this problem between the years mentioned. Finally there appeared an elegant young candidate, from an agricultural school in Scotland, who was engaged with many

misgivings. The New York farmer who acted as farm manager had high hopes of the new professor, but these soon waned when he saw him day by day going over the farm with gloved hands and never touching an implement. Finally the farm manager came to warn the president saying, "Yew kin depend on it, he ain't a goin' to do nothin'; he don't know nothin' about corn, and he don't want to know nothin' about corn; *and he don't believe in punkins!*" He did build a barn of somewhat striking architecture that long remained a feature of the landscape. Then he departed to become head of an agricultural college in Canada, a position he soon lost. Meanwhile three men, the Hon. John Stanton Gould, who lectured on practical agriculture in a way to make men want to get a spade in hand, Professor George C. Caldwell in agricultural chemistry, perhaps to be regarded as the American founder of that branch of the science, and Dr. James Law, veterinarian, a most thorough and efficient man in his line and a strong man in the university councils, saved the day for agriculture until Professor I. P. Roberts was called in 1873. Under his leadership and later under that of L. H. Bailey, all faltering disappeared and the course in agriculture came into its own.

The "Department of Mechanic Arts," since long known officially as "Sibley College of Mechanical Engineering and the Mechanic Arts," but now, in 1920, combined with the College of Civil Engineering under a single administration, narrowly escaped becoming involved in a hobby of Ezra



Livingston Farrand

PRESIDENTS WHITE AND SCHURMAN IN A GRADUATION DAY PROCESSION
FORMER ACTING PRESIDENT CRANE AHEAD

Cornell's that would probably have been a great mistake in connection with the engineering course. His project was to establish great factories, in which the students were to do the work; producing, for example, shoes and chairs for the trade. Such enterprises are now, however, engaged in on a large scale by various departments of the College of Agriculture. He was finally dissuaded from the idea by many arguments, but it must have appealed to him greatly. But it was evident that merely theoretical training would not suffice to produce graduates who could take their places immediately in the practical world of engineering.

Accordingly a mechanical laboratory was established, including machine shops, wood shops, foundry and forge, and students put to work, as a part of their regular course, in producing, not samples of highly ornamental work, but such things as steam-engines, power-lathes and tools of precision of the best design. These attracted much attention at the Centennial Exhibition in Philadelphia in 1876, except from the New England authorities of that time. These authorities were especially loud in their praises of the kind of work sent by the Moscow School of Technology, Russia, but afterwards the head of this school confessed that its men and its machinery had failed utterly in supplying what was needed in their own country for the building of the Trans-Siberian railway, and that American men trained by Cornell methods and their machinery and locomotives had supplied the demand. Shop practice of similar kind on the

most modern types of machines continues as a regular part of the Sibley curriculum but merchantable articles are not now produced as a matter of course work.

Sibley College owes its name and most of its material resources to Hiram Sibley and his son, Hiram W. Sibley. At the time when the Rochester paper made its attack on Mr. Cornell, Hiram Sibley, a resident of that city wrote: "I am not skilled in newspaper controversy, so I will simply add to what I have already given to the university a special gift of thirty thousand dollars which will testify to my townsmen here my confidence in Mr. Cornell." In all he gave over one hundred and fifty-five thousand dollars. The two original stone buildings, facing the quadrangle, were joined in 1902 by the Sibley Dome; and in 1911 Rand Hall provided a machine and wood shop conforming in every detail of construction and equipment with modern factory design. The electrical engineering department, connected with Sibley college in administration, was the first of its kind in the country and perhaps in the world. It owed its inception in part to the fact that a dynamo built in the machine shops made the Cornell campus one of the first electrically lighted areas in the United States. That Cornell should have been in the forefront in the development of electrical engineering is especially appropriate in view of the fact that it was through the electric telegraph that Ezra Cornell amassed his fortune.

The history of the College of Arts and Sciences

is mainly one of changes in the nature of the courses offered for various degrees, changes in the requirements for entrance, addition and expansion in departments and courses. Its "Optional Course" of early days was unique in that any student registered in it might freely choose all his work for himself, subject only to the conditions of taking such subjects as he was fitted to pursue and attending *three exercises daily*. This last provision, no doubt, is the genesis of the customary "fifteen hours" of work carried by ordinary students, inasmuch as classes were not originally scheduled to meet on Saturday.

The complicated story of these changes has been most concisely and effectively told by Professor T. F. Crane, in his speech on "The Liberal Arts at Cornell" at the dedication of Goldwin Smith Hall, published by the university in a pamphlet entitled "Proceedings at the Dedication of Goldwin Smith Hall." With the exception of President White, no more competent person could have been chosen for this task, for Professor Crane has been identified with the active work of the college from its very start, was its first dean, acting in

GOLDWIN SMITH HALL

that capacity from 1896 to 1902, was dean of the university faculty in 1901 and acting president of the university for the year 1899-1900 and again in 1912-1913.

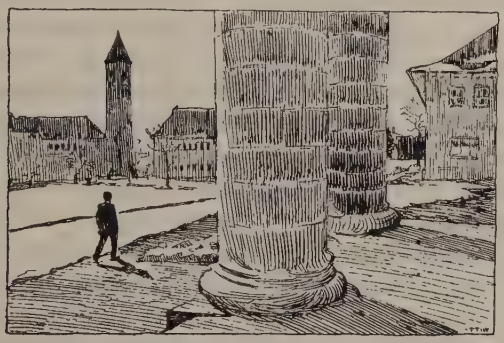
Of the original faculty of the university only Professor Crane remains a campus figure to link old and new. One of the most affecting scenes ever witnessed by the writer was the presentation of a pair of candlesticks to Professor Crane in the library of President White's house on the occasion of Professor Crane's retirement from active service, in 1909. From almost the opening of the university Mr. Crane and Mr. White had been associated; and at this time it must have seemed to them that one of the last firm strands connecting their active energies with the conduct of the university they had helped found and built up, was being severed.

Because of these associations and his affability, Professor Crane is one of the few men in the faculty that all the student body of many generations have known by an affectionate nickname, "Teefy."

"Remember me to 'Teefy' Crane"

runs a line in one of the old Cornell songs. In connection with this Professor Crane tells an amusing story on himself. Recently he visited the University of Minnesota and a former colleague now at that institution, whose guest he was, informed him that the Minnesota students, too, sang that song, but with no knowledge of its allusions, and that before his, the colleague's, arrival they had been of the opinion that "Teefy" must be some "barkeep" at Ithaca!

Until the completion of Goldwin Smith Hall of Humanities, in 1906, the Arts College had no real home. Its departments were scattered in various buildings and the freshman student in its courses was often considerably puzzled for the first few weeks as to just which building and which door he needed to find for his next class. Some of the de-



COLUMNS OF GOLDWIN SMITH HALL ENTRANCE

partments, it is true, were provided for in buildings devoted only to their needs, particularly the sciences, but the languages, history, political science and philosophy were without an established domain. If they were the last to come into their own, their faculties have at least the satisfaction of now occupying the most imposing building on the campus. This the trustees furnished, but Goldwin Smith himself established the subjects it houses on an enduring basis by willing (he died June 7, 1910) almost his entire fortune of more that seven hundred thousand dollars to be used for

the promotion especially of the liberal studies.

The College of Civil Engineering, 1868, the College of Architecture, 1871, the College of Law, 1887, the New York State Veterinary College, 1894, and the Cornell University Medical College, 1898, in general have developed steadily from their first inception. The New York State College of Forestry established in 1898 by the legislature of the state, continued only until 1903, when its faculty was dismissed because the legislature refused to maintain it longer owing to differences in opinion between the college and state officials in regard to the proper conservation of forest lands in the Adirondacks that had been allotted to the college as a demonstration area. Instruction in forestry is now provided by a very efficient department of the New York State Agricultural College at Cornell University.

The New York State Veterinary College deserves more extended mention for two reasons: the first that it has been distinguished by the services of Professor James Law, the second that it was the first of the colleges at Cornell University to be established and supported directly from state funds.

When President White returned from his trip to Europe in the interests of the university, in 1868, the wits said that he had "brought back with him an Oxford professor and a Scotch horse-doctor." The horse-doctor was James Law, and he soon made himself a force both in the university councils and among the farmers of the state. The great annual loss of farm animals from various

diseases had up to his time been taken as a matter of course by the agricultural community in the United States but Dr. Law soon brought about a change from such a view. The entrance requirements to the course were rigid from the start and as a result its graduates very shortly occupied important positions and accomplished great things in veterinary science. Dr. Law's own services to the state and nation may well be said to be invaluable. As President White put it: "It is not too much to say that he has, during his career at Cornell University, prevented the loss of hundreds of millions of dollars from the cattle plague."

That New York State has recognized in a substantial way these services, and others of similar nature rendered by the agricultural teaching at Cornell University, is due entirely to the initiative of President Schurman. At the very outset of his administration, in his inaugural address, he urged that the state should aid Cornell University, especially its departments of agricultural and veterinary science, subjects that touch most nearly the state's interests; that the state should do this not only for selfish reasons, but also because Cornell had for years provided university instruction free to great numbers of its sons and daughters and received nothing in return, and that other states had been very generous to their state universities. As a result of this speech, delivered in November, 1892, the legislature early in 1893 voted fifty thousand dollars for a building and equipment for instruction in dairy husbandry. This building was erected in

the same year and now constitutes the north end of Goldwin Smith Hall. (Though this would seem to indicate a very material linking of the most primitive of stages in human culture with its greatest refinements, it should be said here that dairy husbandry was removed to other quarters before the philosophers moved in.) In the following year a similar appropriation was made for a veterinary building, and, in 1895, one hundred thousand dollars more. This property, however, belongs to the state, and its provision marks the establishment of the New York State Veterinary College, since supported by the state, as is now also the College of Agriculture. In 1913 large additions to the Veterinary College buildings in the shape of hospital quarters were completed and occupied.

The Cornell University Medical College acquires distinction from the fact that unlike the rest of the colleges of the university its main work is not carried on at Ithaca, but in New York City. It has a building on the campus, Stimson Hall, completed in 1901, the gift of Dean Sage, but only the first year's work in medicine may be done in Ithaca. The requirement of a college degree in Arts or Sciences for entrance to the medical course is another factor that makes its position in the scheme of instruction different from that of the other colleges. Except for the provision that a student who has done three years' work for the bachelor's degree (including certain subjects) may substitute the first year's work in medicine for the senior year of Arts, and thus secure an M. D. degree after

seven successful years of study, the Cornell medical college would be a strictly graduate institution. This requirement was put in force in 1908, previously to that a student might enter the medical college with only secondary school training.

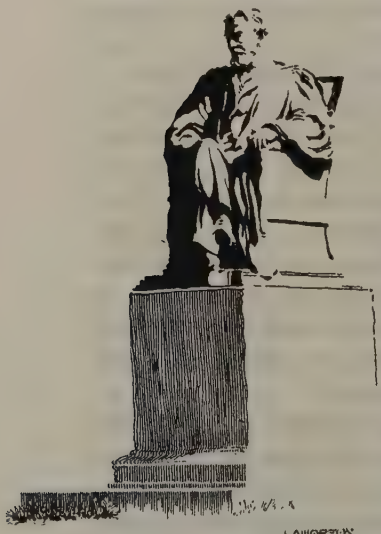
Formerly, also, two years of the medical course were offered at Ithaca but the second year has been su pended because of the heavy expense involved in its maintenance. This is regrettable, for while it is absolutely essential that the two last years of a medical course be pursued in a large city, where hospital facilities are available that a small town does not afford; on the other hand both the university and the student would gain from having second year medical students come into the home environment of Cornell.

In New York City the full four years' course is provided. The main college building, completed in 1901, occupies an entire block on First Avenue between Twenty-seventh and Twenty-eighth streets and cost nearly a million dollars to erect. It is directly opposite Bellevue hospital, and one of the four divisions of this institution, which receives some twenty-four thousand patients annually, is intrusted to the Cornell medical faculty for medical instruction. Similar facilities are afforded in New York hospital for surgical cases.

In addition to the main college building the equipment includes also the Loomis Laboratory, a five-story building, devoted almost entirely to research work. Both these buildings were given, and the whole college maintained from year to

year, until 1913, by Col. Oliver H. Payne, when the same generous benefactor transferred to the university for the future endowment of the New York City division of the medical college over four million dollars, the largest single gift ever made to a medical college in the United States. This munificence of endowment then, happily for it, also sets apart this division of Cornell University from its sister colleges, no one other of which is so amply provided for on a permanent basis.

When President White took office in 1868 he had associated with him in the faculty seventeen professors, three assistant professors and five non-resident professors. When he resigned the presidency in 1885 there were fifty-six teachers of all grades. During the incumbency of President Adams from 1885 to 1892 this number rose to one hundred and twenty-three. During the twenty-eight years of President Schurman's administration, the period between 1892 and 1920, the increase continued at an even more rapid rate and the entire instructing staff now includes some nine hundred persons. Of these about three hundred and forty have the rank of professor or assist-



PRESIDENT WHITE STATUE

ant professor. It is not possible to be very exact as new appointments and resignations are of almost daily occurrence.

Thus the count of the professorial members of the faculty on the fiftieth anniversary of the founding of the university (1918) approached very closely the total number of students that entered the institution in the opening year. But the student body has increased in like proportion. In 1868 four hundred and twelve students entered, in 1885 the student body had increased to six hundred and forty-nine persons, in 1892 there were seventeen hundred in attendance and in the academic year 1915-16 the total of regularly registered students was five thousand six hundred and fifty-six. Probably the ratio of professors to students is about the same now as it was at the beginning of the institution, for in the later years a certain proportion of the faculty has not been actively engaged in the instruction of students in residence. In June, 1916, a total of sixteen thousand and forty-seven first degrees had been granted and there were twenty-seven thousand alumni, including all who had been students for any time.

During the first fifty years of growth there were three administrations, those of Presidents White, Adams and Schurman. The events and development of President White's time have been referred to in preceding paragraphs. On his retirement he nominated his successor, Charles Kendall Adams who had been for fifteen years a professor of history at Michigan University, where

President White had come to know him, first as a pupil, and later as his successor in the chair of history.

For several reasons President Adams seemed eminently fitted for his new office as head of Cornell University. Of all American universities at that time the University of Michigan was nearest like Cornell in its ideals and organization, and President Adams had been educated there and as a member of its faculty had contributed much to its development. He had made a special study of the subject of university government both in this country and abroad. And finally, he was a man of great industry and method, an organizer, and it was felt that such a personality was needed in view of the promised expansion of the university in the near future.

These expectations President Adams more than fulfilled. During his time the first rapid growth in material resources and numbers of students and faculty took place. The material prosperity of the seven years of his administration is estimated at three million dollars, the student body increased from five hundred and seventy-seven to fifteen hundred and thirty-eight, and the faculty from fifty-six to one hundred and twenty-three. An interesting fact is that in this time there was a five-fold increase in the number of classical or arts students. This extraordinary expansion may be said to have established finally the fact that the liberal and the practical studies can exist in harmony within the same halls, and may be cited to

confute the dictum of so celebrated a personage as Matthew Arnold who said: "Cornell University rests upon a provincial misconception of what culture is, and is calculated to produce miners or engineers or architects, not sweetness and light."

With the exception of the final decision against the university of the McGraw-Fiske will case, already mentioned, President Adams's administration was not marked by any especially dramatic incidents. In a broad way the changes he introduced were simplification of courses, a large scheme of elective studies and more adequate provision for post-graduate instruction. Agassiz had said that research by the faculty was essential, that graduate students would not flock to Cornell until its professors were known to be adding to the sum of knowledge. That this end had been attained is indicated by the increase of graduate students during the seven years, from thirty-three to one hundred and thirty; and that it continues to hold true by the fact that in 1916 four hundred and eighty-two graduate students were in residence.

Other new things were the enactment of a statute by the trustees providing for a "Sabbatical year" for professors, the granting of honorary degrees, and the establishing of a "University Senate." The first gave a year's absence on half pay to professors who had served seven years, the second was a short lived departure from the traditional policy of the university to grant no honorary degrees whatsoever, a policy that has very recently (1916) been reaffirmed by the trustees and faculty. On

recommendation of President Adams, however, two such degrees were granted in 1886, and President White and David Starr Jordan, '72, later president of Leland Stanford, Junior, University, have the distinction of being the only persons with Cornell degrees not earned in residence. The alumni, while recognizing the entire worthiness of the persons selected for the honor in these cases, were averse to the change, and on their petition, without prejudice to the degrees already granted, the faculty and trustees rescinded their earlier action on the matter.

The university senate, also, had a short, and seemingly tempestuous, career. Formed in 1889-90 it only lasted until October, 1893, when it was abolished by the trustees. This body consisted of the president and all the full professors, in all thirty-five persons. Its principal function was to consider nominations of professors made by the president and vote on them yea and nay, and transmit its vote with reasons to the trustees. The chief arguments in favor of such an arrangement are first, that no one man, the president, can be sufficiently conversant with the multitudinous specialized fields of modern science and learning to select the most promising candidates in each to fill new or old chairs, nor yet can the trustees, a body of men whose main interests are usually in business affairs; and second, that the special faculty group already appointed to a given department should have a voice in regard to changes or additions to its personnel. But this method of meet-

ing the need for such faculty counsel apparently did not succeed very well, for its practical workings led to its official repudiation.

That the faculty, which is essentially the university, should have some representation in its governing board, nevertheless continued as an undercurrent idea in the management of the institution. It was not, however, to come to the surface again until President Schurman after twenty years service as chief administrative officer, with, consequently, well matured ideas on the subject, in 1912 placed before the trustees a definite plan for attaining this end. His proposal, as eventually adopted, was that the faculty should elect, preferably from its own number, not more than three representatives to meet with the trustees, but without vote, and with terms not exceeding three years for any one representative. Also that from the faculty of each college at Ithaca (except the state colleges) there should be elected two representatives, who, with the dean of the college, should constitute a committee to confer with the several committees of the trustees on such matters as affect the welfare of the particular college. Three years later, in April, 1916, after it had been discussed fully at various times, both by the faculty and trustees, this plan was adopted. By its dual provisions it gives the professoriate representation both in the general affairs of the institution and in the interests of each special group.

This is considered a "new, radical and highly important change in the government of the uni-

versity." It is the latest of the "Cornell Ideas" on university organization, and, like its predecessors, seems likely to have wide adoption by other institutions; already two have taken it up as the practical solution of an acute problem. What the ultimate outcome of this scheme will be can not now be said, but it certainly avoids the difficulties of the earlier senate plan and it has been predicted that it will develop in the faculty "a keener sense of independence, a stronger feeling of power and authority, a readier recognition of responsibility, and a heightened appreciation of the work and calling of the professor." It is a pleasure to record that the three first representatives of the faculty were Prof. John H. Comstock of the class of 1874 and since then almost continually associated with the university, always a forceful personality; the energetic professor of machine design, Dexter S. Kimball, and the professor of economics, Walter F. Willcox, calm and judicial in temperament. That these three men have always had the best interests of the whole university at heart there is no doubt, nor can the trustees have failed to profit by their intimate knowledge of, and sound judgment on, its intellectual life.

President Adams resigned in 1892 because of differences in opinion in regard to administrative matters between him and the board of trustees. He was then called to the presidency of the University of Wisconsin, a position he continued to hold until the time of his death, July 26, 1902.

His successor was Jacob Gould Schurman, who

came to the university in 1886 as professor of philosophy, and in 1892 was unanimously elected president, and resigned in 1920, having served almost continually through the intervening time except for absences during two full years, when his place was filled by Prof. T. F. Crane.

Mention has already been made of events that have occurred in President Schurman's administration, and several of his policies are the topics of preceding paragraphs. In addition to the McGraw-Fiske and the Morse Hall fires, one other calamity befell the university during this time, the typhoid fever epidemic of 1903, which, because of the loss of students' lives it entailed, was the greatest tragedy the institution has known. The Ithaca city water supply, used by a large proportion of the students, became contaminated and as a result some two hundred and ninety-one students fell ill of typhoid fever in the first months of the year 1903. Of these twenty-nine died. During February and March one-third of the entire student body departed for the term. That the fault was entirely in the city water supply is indicated by the fact that not a single person living where the private water supply of the university was furnished (notably the women in Sage College) became sick. Though at such terrible cost, the epidemic had one good result, it led to emergency measures for immediately safeguarding both the city and the university water. Before the fall term of the next year modern filtration plants were installed in each system and extraordinary care has

been exercised in continually testing the water they furnish, so that the supply has ever since been of exceptionally high quality. In April, 1917, the state authorities gave Ithaca the second highest rating for purity of water supply among all places in the state with a population of five thousand or more inhabitants. It should also be noted that the late Andrew Carnegie, then a trustee of the university, paid for the erection of the university filtration plant, which is named after him, and also paid the bills of all students who had been ill and who could not easily afford the expense this involved. Mr. Carnegie afterwards said that of all the money he had expended in various philanthropies this item had given him the most satisfaction.

It is pleasing, also, to be able to follow this narration with the statement that on the death of their father, Henry W. Sage, his sons, Dean Sage and William Sage gave to the university the family mansion on State Street, Ithaca, to be used as an infirmary for Cornell students and further endowed it with one hundred thousand dollars. The supreme easement, afforded by this facility during the epidemic, needs hardly be indicated, its presence and use undoubtedly saved many lives. In 1912 its accommodations were much enlarged and it now again amply serves the hospital needs of the much larger student body of today.

To the Land Grant act passed by Congress when the very existence of the nation was threatened by civil war, Cornell University owes its

founding in great part. One of the specific provisions of this act was that instruction, in the institutions that were to benefit by it, should include military tactics. Once again, in a time of world stress, the country has been involved in armed conflict; and it is a patriotic pleasure, as well as a matter of pride in being a Cornellian, to record that the university has fulfilled this obligation not only in the letter but also in the spirit, and that, at times, with a considerable handicap to its development along other lines. For several years in succession now the War Department has included Cornell University in the list of "ten distinguished colleges" selected for excellence in military training from all those throughout the United States at which officers of the regular army are stationed. The inspecting officer in 1916 reported that at Cornell University the military spirit is developed and nurtured "to an extent not otherwise to be found in colleges of this size" and that the instruction is "of such extent and thoroughness as to qualify the average graduate for a commission as lieutenant of volunteers." Thus it was that in the momentous spring of 1917 when other institutions were making a great newspaper to-do over their hundreds of students organizing in squads for shirt-sleeve calisthenics and broomstick drill, Cornell had a corps of two thousand men, uniformed and equipped with the latest model of arms, and trained in all the modern arts of warfare including entrenchment, as it had developed on the battle-fields of Europe, and as taught them by soldiers return-

ing from that front. No need for Cornell to stand ashamed when the nation called to arms!

Many of the other new buildings acquired or erected during President Schurman's administration have been referred to in previous connections. In chronological order the more important ones are: The Infirmary, 1897; Stimson Hall, 1901, the gift of Dean Sage; the Medical College, New York City, 1901; Sibley Dome, 1902, the gift of Hiram W. Sibley; the Hydraulic Laboratory in Fall Creek Gorge, 1902; the Carnegie Filtration Plant, 1903; Goldwin Smith Hall, 1904; Rockefeller Hall, 1904, the gift of John D. Rockefeller; the Loomis Laboratory, New York City, 1906; Roberts Hall, 1906; Rand Hall, 1912, the gift of Florence Osgood Rand Lang; Bailey Hall Auditorium, the Poultry Husbandry and the Home Economics buildings, 1912; Prudence Risley Hall Dormitory, 1913, the gift of Mrs. Russell Sage; the Animal Husbandry and Forestry buildings and Caldwell Hall in 1913. During the years 1914 and 1915 there were erected also the new residential halls for men, Baker Court, North and South Baker Halls and Founders' Hall, chiefly from gifts by Geo. F. Baker, assisted by alumni contributions. In recent years the alumni have also contributed one hundred and fifty thousand dollars for the construction of the Alumni Field and the University Playground. Individual alumni and their families have provided during the same time the Schoellkopf Memorial athletic building, the Football Stadium and the Bacon Hall for baseball practice. During 1917 the new Drill Hall, a

truly vast structure, furnished by the state was completed, and the new Astronomical Observatory located on the north side of Beebe Lake was under construction. The university lands include nearly one thousand four hundred acres, a vast estate in comparison with the two hundred and sixty acres owned in 1902. Up to that time there had been an addition of only sixty acres to Ezra Cornell's original gift of two hundred acres.

This list reads like portions of the Book of Numbers and will accordingly be passed over very light-heartedly, but the very space it occupies will serve to impress the extraordinary material expansion the university has experienced in the past few years. A large part of this is due to the establishment in 1904 of the New York State College of Agriculture at Cornell University, a further result of President Schurman's policy of calling on the state to do its share in the higher education of its sons and daughters. Under the inspiring leadership of Liberty Hyde Bailey, its director for the ten years, 1903-13, the College of Agriculture grew by leaps and bounds, so that in addition to the increase in buildings that has led to the creation of the "new quadrangle," there was also an increase in numbers of students registered in the course, from one hundred and forty-two to twelve hundred and sixty-three.

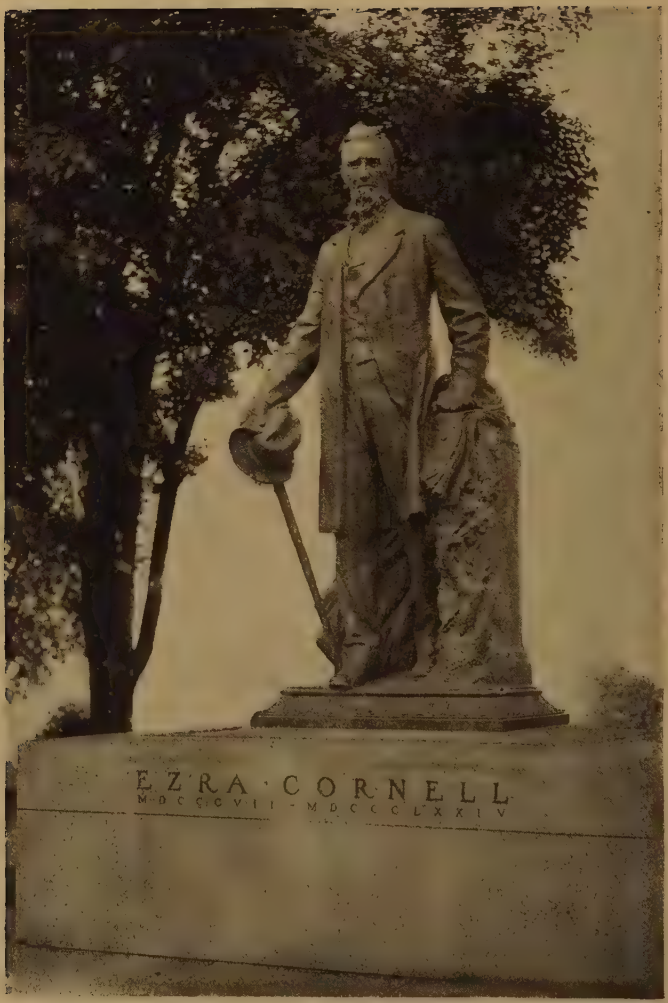
President Schurman, after his resignation in June, 1920, became United States minister to China. During the following year and a half the presidential chair was occupied by Albert W. Smith, '78. The administration of President Smith had a sym-

pathetic human quality best indicated by relating that he was affectionately known to the undergraduates as "Uncle Pete."

Meanwhile a committee from the trustees and faculty was engaged in a patient search for a new president who should be first a scholar and should have also superior administrative ability, personal magnetism and a wide knowledge of men and affairs; a combination of qualities possessed, each in a marked degree, by only few men in any generation. Eventually this committee nominated Dr. Livingston Farrand who was elected and became the fourth duly inaugurated president of Cornell University on October 20, 1921.

Livingston Farrand was born in Newark, New Jersey, June 14, 1867, was graduated from Princeton with the class of '88 and has an M. D. degree from the College of Physicians and Surgeons bestowed in 1891. From 1903 to 1914 he was professor of anthropology at Columbia University. In 1914 he became president of the University of Colorado. During the war he directed the campaign against tuberculosis in France and later was made chairman of the central committee of the American Red Cross. He had resigned the presidency of the University of Colorado and was living in Washington, D. C., when elected to the presidency of Cornell. The record shows that the nominating committee solved its problem most excellently—the performance of the man since entrance into office proves that a happier choice could only have been an infinitely remote possibility.

A Company of the Cornell Reserve Officers' Training Corps (Cornell Students)
Marching up Central Avenue



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STATUE OF THE FOUNDER

Unveiled Sunday, June 22, 1919, Semi-Centennial Celebration
Fiftieth Commencement Week

Provided thus with an able leader the great need of Cornell now is for a much larger endowment. The most pressing demand is the necessity for larger salaries for the faculty, which in any analysis is really the university. The average salaries of the professorial rank at Cornell are today lower in buying power than they were a score of years ago. But it is idle to specify; what the university should have is, bluntly, an endowment two times or three times that which it now holds, the income from which should all be free for use where most needed. Five millions of such a fund has already been secured in the Semi-Centennial Endowment campaign in contributions by Cornell alumni and alumnæ and undergraduates. But many more millions are needed. In the early days of the institution, when great wealth was much more uncommon than now, men gave freely without attaching strings to their donations. They did not require that buildings be put up as monuments to them, that others should match their contributions and the like. Why not similarly now, when there are hundreds who possess millions. If some guarantee is needed that the institution is worthy, what better one can be found than that its own alumni have given so liberally. And surely it is more gratifying to give one's self than to have the same sums wrested from one by income and inheritance taxes. Hence Cornell calls: Step forward gentlemen, the university needs your most liberal support and will in the future as in the past prove most worthy of your trust!

CHAPTER IV

STUDENT LIFE

THE student body at Cornell includes representatives from every quarter of the globe. During the academic year just preceding the Great War there were registered as undergraduates over one hundred and eighty foreigners. Canada sent fifteen, the same number came from Mexico and the Central American Republics. Cuba and Porto Rico together contributed thirty-four, Hawaii and the Philippines furnished twenty-three. Twenty-seven students came from four South American countries. There were twenty representatives from eight European nations. China sent forty-four students, Japan six, other Asiatic countries five more. One man came from Egypt, four journeyed from South Africa. If graduate students were included, a still greater diversity and considerably larger total would be manifest. Student life at Cornell had a distinctly cosmopolitan aspect and has, since the war, regained much of this diversity. When it is added that nearly every state in the Union sends some of its sons, it will be quite clear that student existence must make quite different impress according to the particular mind on which its different phases are recorded. What the New Yorker takes for granted may seem very novel to the man from Arizona or the Asiatic native.

Despite such obvious differences in the point of

view, it is quite possible to give some account of the routine and incidents of the average undergraduate existence, enough at any rate to suggest its variety of interest. One reason for this variety is that Cornell is an entity; she is unique among the greater eastern universities in that she is not merely an adjunct to some large city as Harvard is to Boston, Yale to New Haven, Columbia and Princeton to New York, and Pennsylvania to Philadelphia. Set off by herself among romantic hills, she has developed her own life uninfluenced by the sordid lures of a city environment.

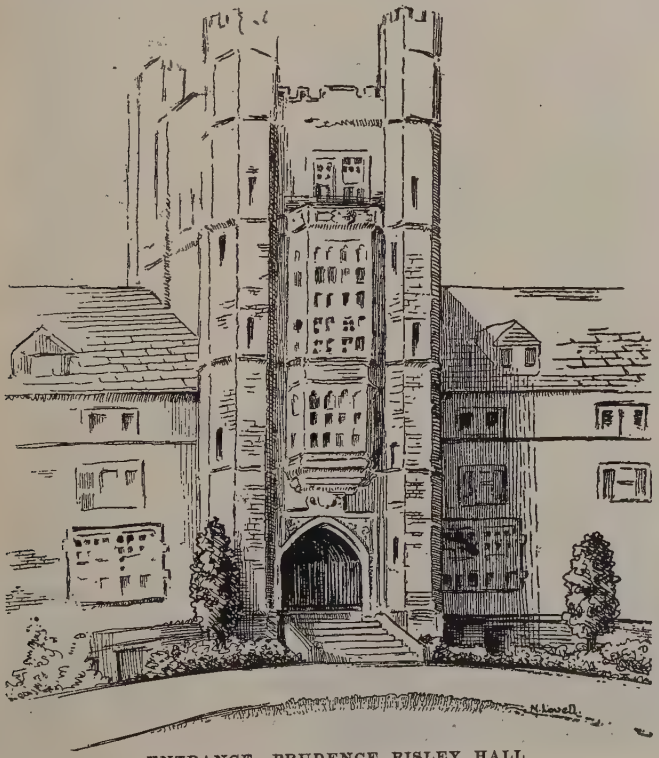
Picture the arrival of an unacquainted freshman at Cornell. As he steps off the train he is met by student room-agents who offer to locate him comfortably. He has received from the university authorities a list of accredited rooming houses and has some idea where he wishes to live and how much he will pay. He may have previously engaged a room in one of the university's new residential halls. If so, he needs only to be directed to his quarters. If not, he inspects a number of rooms, finds one that suits his fancy, and arranges to lease it for the term, signing a contract to that effect. Formerly it was the unwritten law that engaging a room at the opening of the university bound the student to keep it for the year, though no formal agreement of any kind had been entered into. This has now been done away with, but while it held, differences between landlord and student tenant were many and often led to the local courts. As students usually got the worst of a legal encounter

they often resorted to rough expedients in order that they might be ejected from rooms they no longer cared to occupy, either because the landlords or landladies failed in their duties, cleaning, provision of adequate heat and the like, or because the student had been taken into a fraternity and wanted to live in its chapter house. One man insisted on literally covering the walls of his room with tacks in order, he claimed, to hang a multitude of magazine prints. Others had friends come in to sing at all hours of the night. The new system binds the landladies as well as the students and has resulted in a great improvement in the conditions. That renting rooms to students has, nevertheless, been quite profitable is indicated by the following figures taken from a want advertisement in a local paper, Ithaca Journal, November 21, 1913. A house, nearly new, of twenty-one rooms, including student furniture, is offered for sale at eleven thousand five hundred dollars. The gross income for the preceding year is given at two thousand and fifty-six dollars, the fixed charges at four hundred and four dollars, leaving a profit of sixteen hundred and fifty-two dollars. It should also be noted that, in addition

A CORNER OF THE NEW RESIDENTIAL HALLS FOR MEN

to this net income, the landlady would have a home for herself at least.

The earlier difficulties between landlady and student were often the result of the activities of unscrupulous rooming agents. Such a student agent got the first week's rent for locating a man in a house on his list. Thus many undesirable houses were filled while better places remained empty

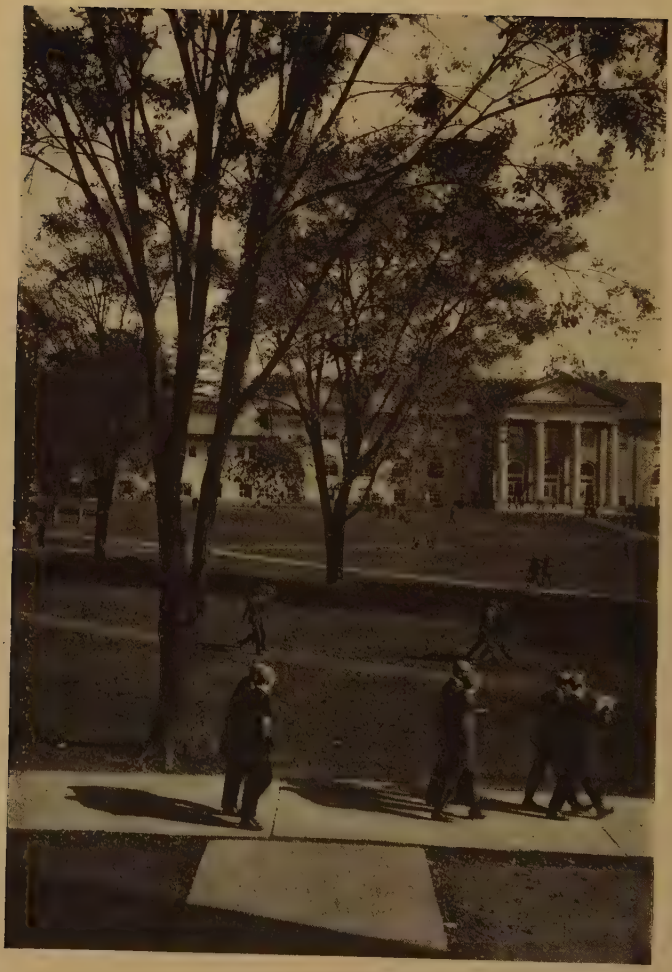


ENTRANCE, PRUDENCE RISLEY HALL
The new dormitory for women students

because not listed. Moreover the greenness of freshmen is proverbial. A stock story refers to an episode that is said to have occurred in Cascadilla Hall. A freshman moving in found an upperclass student removing his effects which had been stored in the room over summer. After packing everything movable; in Cascadilla all furniture was formerly the student's own property, the freshman's eyes bulged on seeing the older student starting to screw at the connections on the steam radiator with a very efficient looking wrench. "Here, what are you doing?" he asked. "What do you think? Taking down the radiator, it belongs to me." "Why I won't have any heat." "No, unless you get another one." "How much do they cost?" "Well, a new one would cost you twenty-five dollars, but I'll let you have this one for ten rather than move it. If you'd said anything I'd a offered it to you in the first place but I didn't want to push it on you." "All right! I'll take it," said the freshman, hurriedly.

After getting settled in his room the student's next task is to locate an eating place. In former years, this meant finding a regular boarding-house suited to his taste and purse, but such dining-rooms have nearly all disappeared. The few that remain are those that charge relatively high prices and retain a patronage by serving good food in something approaching a homelike atmosphere. The fraternities also attempt to preserve such conditions at their tables. The majority of the students, however, have recourse to a cafeteria,

At the Hour



"The Six Frosh"

where meals are served on the same plan as that of the restaurant in the Home Economics department: help yourself, choose what you wish from a wide variety offered for inspection before selection, much or little as the appetite at the moment dictates. This plan has many advantages. In general it operates against overeating, a student may be economical if he wishes; on the other hand when very hungry he can have a good "feed" without needing to call for "seconds" of each serving. A wide variety of food can be served economically at each cafeteria primarily because the expense of waiters is eliminated and second because the meal hours can therefore be extended over a longer period and a greater number of diners served at one place. The longer time that meals are available is a great convenience, and, as the customer pays cash for each meal as he gets it, there are no bad accounts, and the customer is under no obligation to return to the same place for the next meal. Thus the numerous competing establishments make available to the individual a great variety of fare and the further possibility of becoming widely acquainted by eating at different places. At one cafeteria they have even gone so far as to clear away the tables after dinner to make room for dancing to the music of a victrola. That the cafeteria system is economical is further demonstrated by the fact that it has been adopted by the management of the university dormitories and that these authorities have found it possible to provide an orchestra several times a week as an added

feature to attract students to eat in their establishments. So attractive indeed are the cafeterias that many faculty members and their families occasionally avail themselves of the privilege of dining in them.

Having provided himself with a room and found a place to eat, the freshman is ready to go up on the campus, perhaps to register, perhaps to take entrance examinations. On the way he encounters the many solicitors whose efforts have already been described. He has been careful to purchase and wear the gray "frosh" cap that custom prescribes. On consulting his "Bible," the handbook of suggestions to entering students that the Christian Association issues each year, he learns of other rules that he is expected to obey. Thus he must not smoke on the campus or on the street, must refrain from entering certain resorts down town and must be up the "Hill" by half-past eleven every night. When attending the theatre he must not sit in the front rows, and at games he is restricted to certain stands. If he does not adhere to these and other rules, his name may, at the request of the Student Council committee, be published in the Cornell Daily Sun. That may not seem a very awesome punishment, but it is effective, for the freshman class itself takes the greatest pride in seeing that these regulations are enforced. Men of quite dignified maturity are often included in the freshman numbers; these as well as the youngsters wear the insignia of their class. Indeed the older men seem to feel they are in this way renewing their youth

and seldom object, though their appearance may appeal a bit to the risibilities of the observer. But the cap-mark serves to promote freshman acquaintanceships and the other rules are quite wholesome in restraining the native exuberance of the new college boy. One university rule, at least, in regard to registration, the freshman ought to know about, and that is that as he writes down his name on the official card, thus shall the university always thereafter know him. If he writes Bill Courtcliff Harries, Bill Courtcliff Harries he must be, though he was christened William. The trustees may so far relent, when it comes time for him to get a diploma, as to add a line at the bottom that Bill has changed his name to William, there is no other recourse. No doubt this rule was made because of Alice wishing to be Alys, and no doubt the friendly registration official will give a word of caution, nevertheless one trembles for Bill. During the early weeks of the term a member of the Freshman Advisory Committee (made up of junior and senior classmen) calls on each of the freshmen at his room and offers such counsel as may seem pertinent. It is reported that one freshman after listening attentively to the enthusiastic exposition of his mentor asked, very business-like: "How much do I owe you for your trouble?" To say that the advisor was somewhat disconcerted is putting it mildly, yet in view of the soliciting he had probably undergone since entering, it is not surprising that the freshman felt that everything offered had its price. Only quite recently a Sibley student, who

had no doubt heard the story of the sale of the radiator recited on a previous page, in a spirit of emulation attired himself in his shop clothes, entered the room of a freshman in the same Cascadilla Hall, tinkered with the radiator for a while and then said, "Three dollars, please; I'm the plumber." He got it too.

On the first day of instruction the president formerly made an address annually to the students. This was one of the few occasions, the exercises on Founder's Day was another, when one might see a large part of the student body together in one place on the campus. At other times when large numbers congregated, guests and townsfolk were also much in evidence, as at games and on the occasions of the different student celebrations. The desirability of more frequent assemblages of the student body itself has in recent years been met by the institution of a Convocation Hour. At a number of times during the college year, class exercises are suspended between twelve and one in the afternoon and the university turns out en masse to listen to some notable personage, as for example ex-President Taft. In 1920 a Convocation for the recognition of scholarship was held and was very successful, hence promises to be an enduring feature. The need for meetings of this kind has been proved by the large attendance at those that have been held. In fact the size of the audience has been the greatest embarrassment. There is no hall on the campus large enough to hold all those who desire admittance.

At a Football Game, Schoellkopf Field

Campus, Early Spring, 1869

Campus in 1877

Sites of N. Y. S. College of Agriculture and the Playground

Summer, 1904. Ploughed strip is initial operation in grading playground

Very soon the student finds himself fitted into the accustomed humdrum of university work. No longer does he puzzle what class he has next and where in the maze of buildings that particular room is located. The greatest bane of his existence now is the necessity of making eight o'clock classes. These come three mornings a week in his particular schedule and it is beastly to have to get up so unpleasantly early. Nevertheless he finds the university system a pleasant relief from the dull routine of the preparatory school. Here one's classroom hours vary with the days. Thus there may be only one lecture one morning, though to compensate for this, one may need to attend four or five exercises the next day, or perhaps spend two and a half hours in an afternoon laboratory period for a single credit hour. University courses are arranged on a basis of credit hours, each lecture or recitation in a week counting one hour credit, each laboratory of two and one-half hours' duration one credit. From twelve to eighteen or more such hours of instruction per week are carried by each student. Failure to do satisfactory work invites suspension from the university for a term, if repeated on reinstatement, permanent expulsion.

Our freshman being of a studious turn of mind felt that he must look to his laurels in this new sphere of learning. He had rather imagined that a majority of his fellow students would be the picked men of their respective communities and that it would not be so easy to keep to the front as it had been in the mixed crowd of the high school. To his

amazement he finds that this is not so. The rapidity with which some subjects are covered by the long assignments does bother him for a time but he soon learns that because a class meets only three times a week it does not follow that he may idle away all the intervening hours. Many of those hours out of class are meant for reading and study, and must be so spent, if he would keep up with his work. Failure to keep up with the work is the particularly wide and easy road to a "bust," the Cornell term for suspension at the end of the term. There was formerly an equally popular path to busting, perhaps coördinate with failing to keep up with the work. Its nature is indicated by the refrain, "Give My Regards to Davy:"

Give my regards to Davy,
Remember me to Teefy Crane.
Tell all the pikers on the Hill
That I'll be back again.
Tell them of how I busted,
Lapping up the high, high-ball—
Oh! we'll all have drinks
Down at Theodore Zinck's,
When I get back next fall!

Happily times have changed, nowadays downtown dissipation consists most commonly in an evening at the "movies." The revised version of this song, quoted on next page as it appeared in the Sun's nonsense column, "The Berry Patch," in 1920, signed "Lord Helpus," is indicative of new diversions; the question of participation in which has become a great moral issue with the male student body.

Give my regards to Gladys,
Remember me to Maud and Jane.
Tell all the tea-hounds on the Hill
That I'll be back again.
Tell them just how I busted,
Listening to the jazz band's call—
Oh! we'll all write a berry in the old Wisterie,
When I get back next fall!

The freshman finds that certain of his lecture classes are very much worth while and occasionally something happens, even in ordinarily dull recitation periods, to relieve the monotony. Thus there was quite a sensation when a none too attentive student misunderstood the English professor's instructions to write an essay on "Intimations of Immortality" and handed his in headed "Imitations of Immorality." One shudders to think what the contents may have been.

After some time the freshman gets acquainted with all the men living in the same house. This may be a slow process but it is an interesting fact that such a group, brought together quite fortuitously, very generally develops strong bonds of fellowship. In this may be found another good argument for the establishment of Commons at Cornell University. The renovation of Barnes Hall and the installation there of a "coffee house" has met this need in part. The Cornell Union, however, will permit many more men to win the broader acquaintanceship which they fail of obtaining in the limited group inhabiting any one rooming house.

As in the fraternities, the men in rooming houses quite commonly get together for a social

hour after dinner, possibly in several groups because they need to meet in one of the single rooms. In the absence of a piano, as an incentive to music, conversation usually develops into a discussion of the relative merits of athletic teams or perhaps some kind of an "argument" is started. The topics considered are almost infinite in their variety, but only too seldom are the subjects of the curriculum included. After several hours devoted to study there may be another period of relaxation before retiring. A "feed" is then in order. Possibly some prank is concocted. There is always a fertile brain to evolve some scheme. A rather fastidious youth was so rash as to gloat openly at having a fresh jar of a new and especially good kind of cold cream he delighted to use after shaving. That night the jar was emptied of its contents and clean, fragrant, white library paste substituted. The application of this compound, and the commotion ensuing a little later, of course gave infinite delight to the conspirators the next morning. A rather crusty old fellow who for a long time was landlord in one of the larger rooming houses suffered because he was too prompt in suppressing any unseemly noises. He reserved a room for himself at the end of a narrow hallway the greater part of the width of which was taken up by a row of empty trunks. One night the students remained quiet until they were sure he had retired, then stole up and warily distributed sticky fly-paper all along the passageway leading to his room. This accomplished, one of the number started down stairs

dragging an empty trunk behind him, while the others abetted the resulting din by rolling various objects around the halls. The old gentleman, as expected, jumped right out of bed and without stopping for slippers rushed down the hallway. During the time he, perforce, adjourned to the bathroom in an endeavor to free his pedal extremities from their encumbrances, merriment for once reigned unchecked in that house.

When Cornell students spend an evening down town, Ithaca requires that they shall comport themselves with dignity. One can not well blame the town authorities for being very stringent; if once a horde of five thousand students gets out of hand in a small place the scene is apt to be painted very red. Formerly punishment for rather mild offenses was too commonly in the nature of rather excessive fines. Now the university employs a proctor, one of whose duties is to nip incipient trouble in the bud. If it does occur he acts as an intermediary between the offender and the law. But it is vain to hope that all escapades can be suppressed, just as it is ridiculous to feel that the university is responsible or should feel compromised because of them. No one can guess where the next difficulty will develop. Thus who could foresee that a certain student would become so much enamoured of the charms of a feminine vaudeville star playing at a local theatre, as to feel impelled to stand up and level a four-foot-long telescope at her that he might have a closer view? Possibly because it was not in the act the audience roared,

nevertheless the student was promptly arrested.

In the early weeks of the fall term, one attraction, football, is supreme. Small wonder that with stands filled with cheering thousands, a fervor of enthusiasm should be aroused in even the most sluggish soul! The freshmen have their own section; cheerleaders whose evolutions would be an eye-opener for even the most athletic musical director fairly pull yell on yell from their husky throats. Whether the team is successful or not, these vocal incentives to put forth their best efforts continually ring in the ears of the players. But what a wild outcry ensues when Cornell crosses the goal line, especially if the game is an important one. The Cornell yell is famous of yore and its simple directness makes it very effective. At present what are termed "three short ones" and the "long yell" have the vogue, but it is said that these are only indifferently successful modifications of the original Cornell yell. This was composed of the words, "Cornell—I—yell—yell—yell—Cornell;" was given only once in a considerable interval, and was spoken very slowly. It is said that the barking roar produced could be heard at points four miles distant from the origin. Efforts have been made to revive it but the present generation seems to prefer something more continuous and rapid to the greater volume of the old yell.

Scenes and occasions like these, with their emotional interest, develop that intangible thing called college spirit. In the minds of many practical persons this is a silly affectation of callow youth.

Decorated for the Parade—Freshman Banquet Rush

Freshman Banquet Rush

A Group from the Pageant
May, 1917

But Cornell spirit of the true sort sinks deeper, it is a great affection rather for the university, a pride in her standards, a belief in her ideals and a sincere wishfulness to become a worthy graduate from her halls. Such is the feeling that, when the game ends, whether it has been won or lost, impels every undergraduate to rise and with bared head to sing the Alma Mater with his thousands of classmates while the shadows lengthen and the mellow Indian summer afternoon comes to a close.

In the middle of the term many professors announce preliminary examinations. In courses where they are given there are usually several such tests before the final. As the term standing of the student in the subject depends very largely on the marks received on the preliminary examinations it behooves the undergraduate to make a good showing. Some departments excuse students who have a term average of eighty-five or over from writing the final examination. In such cases there is an added incentive to do well in the earlier tests. Even those students who habitually practise "sharpshooting for a sixty," the passing mark; figuratively at least, sit up and take notice when the time for preliminaries draws nigh. Too often though they come away in the same frame of mind as the individual who headed his paper:

"Lord God of Hosts be with us yet
Lest we forget, lest we forget."

and at the end set down:

"Lord God of Hosts was with us not
For we forgot, for we forgot."

Undergraduates quite commonly have a feeling that they are held too strictly to account in the marking of examinations at Cornell. It is interesting in this connection to record the change of feeling generally experienced by young instructors engaged in grading papers. When first given the task, they generally voice the sentiment of the students on this subject and deliberately try to be generous in their marking. Perhaps before they have finished with the first set of papers, almost without fail when they come to the second lot, their mental attitude changes and they need to be cautioned not to expect too much. Indeed the utter imbecility shown by some answers would try even proverbial patience. Perhaps indifferent instruction in many preparatory schools is most commonly to blame for the poor results. Thus it is a fact that many students do not understand the English language well enough to interpret questions intelligently. The grammar and handwriting of the answers is often such as to make one ashamed to need to consider them even, coming from university students.

If preliminary examinations excite some measure of apprehension in the undergraduate mind, this is nothing in comparison with the mental anguish suffered during "Block Week," as the period in which the term examinations are given is called. Happy then is the man whose work has been good enough to secure for him an exempt. The examination schedule extends over ten days, mornings and afternoons, and the less fortunate

brethren put in anxious hours of tutoring and cramming in the time that precedes the particular tests each needs to pass. Once in, stay in, is not true of Cornell as it is in some schools. Here the incompetents are ruthlessly weeded out and sent home at the end of each term. While they may sympathize with the man who has failed, Cornell men are glad this is done for it insures that the Cornell degree stands for four years of conscientious and successful study.

After the travail of mid-year Block Week comes Junior Week with its attendant festivities and bevy of fair guests. Free from mental cares, the undergraduate plunges into a round of reckless physical dissipation which perhaps leaves him even more exhausted than did the examinations of the preceding period. So many events must be crowded into so short a period that the nights as well as the days are filled, no time is left for sleep. The Musical Clubs give a concert, the Masque a play, there are breakfasts and tea dances and private theatricals. But the great occasion is the Junior Ball. A considerable portion of the gaunt interior of the Drill Hall is converted to a fairy bower for this event. It gleams with a myriad of lights, while great garlands of flowers and greenery are festooned from the ribboned canopy overhead. The sides are measured off in an unbroken row of boxes, each gaily decorated with furniture and trappings from the college homes of the occupants. The girls also do their part to enliven the scene by reserving their prettiest gown for this dance.

Indeed there is a gown for every possible occasion and if the fair maid can possibly manage she has a different one for every event of its kind.

During this week local taxicab-men, caterers and decorators reap a rich harvest. Of late years, there has been considerable agitation to keep down the expenses of participation in the entertaining. Thus flowers for the girls were for a time taboo. The Bailey Auditorium provides a suitable hall for the Musical Clubs concert, obviating the large expense involved in leasing the local theatre. Similarly the use of the Drill Hall has made possible the accommodation of greatly increased numbers at the dances and this has resulted in a much reduced cost of individual tickets and possibly also in the expense of decoration.

During the winter months the university community is augmented by the presence of some six hundred or more short or winter course students registered in the College of Agriculture. To these the regular undergraduates apply the term "Short Horns." These "Short Horns" comprise mostly farmers and other agricultural workers, largely from New York State, who wish to get in touch with the latest methods and ideas in their various lines. Younger men predominate though there are quite a few men, and women, well advanced in years. Probably these students derive greater practical benefit from their short period of instruction than do many undergraduates from a four-year course. They certainly take themselves very seriously and the efforts of some of their number

to dress and act the part of a college student are often amusing. Their conversations, too, are apt to be quite droll, as this, overheard on Central Avenue: "You ought to 'ave been to the Poultry 'Sociation meetin'." "Why?" "Fellows almost got to hitten each other." "How'd that come?" "Couldn't decide about the pin, some fellows want-

FOREST HOME PATH IN WINTER

ed a egg on it, others a hen. Looks like it might break up the 'Sociation."

The first outdoor diversion afforded after the skating and tobogganing days of January and February have been succeeded by an apparently interminable epoch of gray skies and snow-ooze is the Freshman Banquet Rush. This comes on one of the first bright Saturdays of the spring,

when the frost is out of the ground but while the soil is still wet and soft for many inches below the surface. At the call to arms the freshmen and sophomores range themselves on opposite sides of a square on the Playground and divide into squads of about fifty in single line on each side. Each individual is decked out in the oldest clothes he owns or can borrow. At the crack of a pistol the rival bands, each with locked arms, edge cautiously toward the middle of the field. There the lines suddenly break and a man to man encounter ensues. The object of the game, for the freshmen, is to get to the far side uncaught, for the sophomores to permit no freshman to pass their line. On being downed the freshman must be held for three minutes to perfect the capture. After several encounters have occurred the battlefield becomes a sea of mud. As the classes number each about one thousand men the spectators are afforded the unique thrill of seeing hundreds of individuals successively roll and struggle in the mire. A sufficient compensation for the soft ground is the minimized danger of injury in the encounters. The event usually winds up in a free for all, mud-slinging contest, after which the sophomores paint the faces of their captives in brilliant hues of green, blue and red, and supply them with signs and banners proclaiming their insignificance. Thus accoutred they are paraded about the Campus for the edification of the multitude. But after the parade the freshmen are permitted to escape to much needed shower baths and, after a thorough

THE SPRING DAY "PEERADE"

Spring Day as Celebrated on the Quadrangle—1905

wash, to enjoy their first class-banquet in peace.

This rather tame affair is the only survival of the strenuous freshman banquet proceedings of earlier days that came to a climax and were abolished after the fall of 1904. The object of the sophomores in those times was to prevent, by capture and imprisonment, as many freshmen as possible from attending the banquet, especially the class officers; or to usher their captives into the midst of the banquet with faces grotesquely painted and in garments as freakish as could be devised. That, after parading the captives so decorated and in manacles through Ithaca streets. During the several days that preceded the banquet it was necessary for freshmen to go into hiding and to go to classes only in numerically strong bands if they wished to avoid abduction. Holes were even chopped into the roofs of houses by the sophomores in their endeavors to capture freshmen sequestered in attics. On the night of the banquet, freshmen, who had until then escaped capture, made their way to some secluded rendezvous from whence they proceeded in a body to the Armory where the banquet was held. Inside the Armory was a safe haven but sophomores guarded the approaches and perhaps turned the stream from a fire hose on the freshmen stormers. Altogether those were rather riotous days and when, finally, university work came to be seriously interrupted, and property damage amounted to considerable sums, the faculty put a ban on the whole affair. For one year every semblance of a rush was abso-

lutely prohibited. In the following year the undergraduates secured permission to stage the modified performance of today.

In marked contrast with this spectacle, now officially designated the Underclass Mud Rush, was the picturesqueness and beauty of a pageant given by the women of the university in May, 1917. In a series of episodes this depicted the part that women have had in the development of universities, in science and learning, from the days of the Greeks and Romans down to the present. The spectacle was staged in the natural amphitheatre of Cascadilla Creek. The participants in variegated gowns, extended in intricate figures of dances ancient and modern, over the young turf and projected forth boldly by the background of just-greening trees on the slopes, provided a most brilliant ensemble, not soon to be forgotten.

Spring Day, also, has a recent origin. Its inception was a comic parade held on the campus in the morning of March 29, 1901, as an advertising stunt in behalf of a performance by the Musical Clubs at the Lyceum, in the night of the same day, for the benefit of athletic finances, which were at that time at a very low ebb. The parade idea immediately caught the student fancy and in the following year a bright undergraduate mind conceived that some cash might be collected at the time of the morning lark. This was accordingly designated "A Campus Frolic" and its program consisted of a series of tugs of war between teams from the various colleges, held in the intervals be-

tween classes. Meanwhile student venders sold rattles and other noise making toys at profiteering rates. The impromptu performance proved to be great fun, and the fact that two hundred dollars net gain resulted was sufficient incentive to attempt something of the same sort on a more elaborate scale in the next year. Hence 1903 saw a tent erected on the quadrangle, a special recess period reserved for the show and the official denomination of the revelry as "Spring Day," to indicate that its purpose was to give expression to the undergraduate joy at the approach of the vernal season. The feature this time was the exhibition of the "much mooted Mouch-Mouche," which proved (after the payment of twenty-five cents to enter an ante chamber, bare of all but its canvas walls, and another dime to pass through into an inner enclosure) to be a little red and black pig.

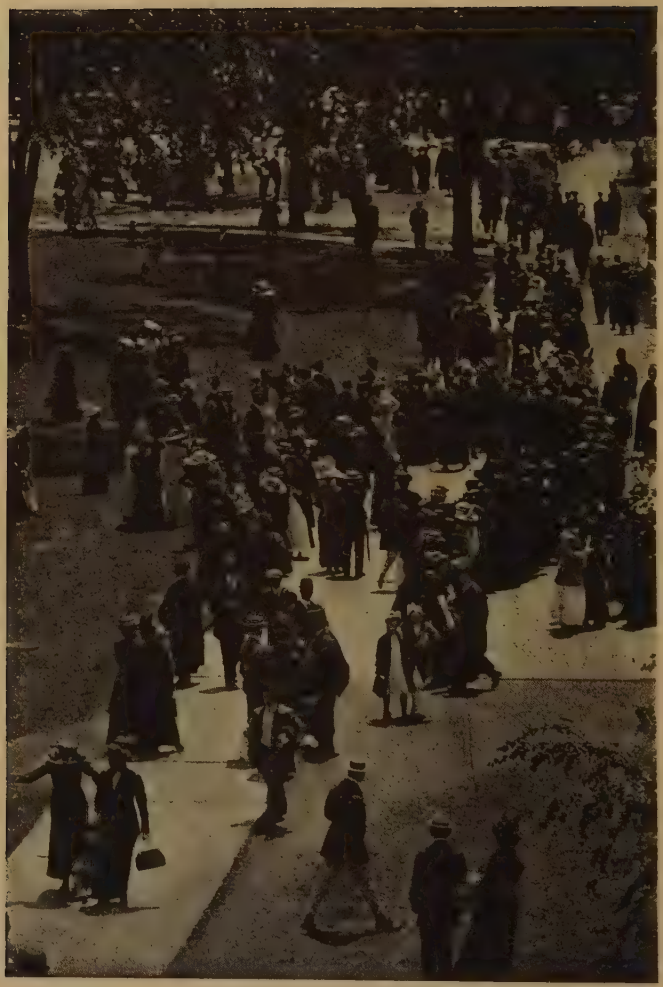
The success of "Mouch-Mouche," and of "Mzupzi" which followed, suggested giving each succeeding Spring Day a distinctive name, at first merely grotesque and beguiling, later one both allusive to the mercenary designs of the perpetrators and also susceptible of utilization in advance advertising of a cryptic sort. Of these, "H. A. S. H." (have a shekel handy) "Oui Gneau" (that no change is returned) and later ones referring, as a final kink, to a titular genius, as "Hell Puss," featured on the placards as a disreputable tom cat (help us) "Mister Enuf" pictured as a dime novel sleuth and indicating that the shows would pro-

vide mystery enough; are representative of the racy fertility of the undergraduate mind as applied to its own devices.

There was a *hiatus* for several years because of the war and the Student Army Training Corps administration, but this was successfully bridged when "Colonel Hardly Fair" (to so delude the unsophisticated) presided at an indoor carnival of the same general character as Spring Day in the winter of 1919 and gave a military flavor to the official housewarming of the new Drill Hall and its dedication to university uses. "Hoodoo Eve" (some who do, some who do not dance) presenting also: "The Organ Refrightful," "The Move Ease," the "Meeting of the Plague of Nations" and similar skits, "all hoodooed," followed in March, 1920, and the spring of 1920 witnessed the revival of the old time Spring Day in the guise of a "Roman Carnival."

From the original location on the quadrangle the shows have moved successively to the Armory green, the Library slope and now to Schoellkopf Stadium which promises to be a permanent site. They continue to retain much of their old time flavor and resemble most the side show offerings of a big circus. For the actual celebration many tents and fakirs' booths are set up during the night preceding and in the early morning of the day. At about ten o'clock, a grotesque parade is organized downtown, and slowly wends its way up the hill, accompanied by an ever increasing throng of students and visitors. A few moments after the

SENIOR SINGING
After the undergraduates have departed



Receiving Diplomas, at the Registrar's Office
After the Graduation Exercises

field is reached every attraction is going full swing. A great variety of shows is offered each one by a different organization. The Cosmopolitan Club's attraction is usually especially elaborate, for its members may draw on the talent and costumes of nearly all nations in planning their exhibition. The advance advertising of the Bull Fight in 1905 referred so insistently to the presence of a real bull and to Spanish-American undergraduate matadors that the newspaper fraternity were sold and, in turn, almost succeeded in bringing the university into disrepute by virtuously denouncing the proceedings, before the event. A real bull appeared in the parade; the fight, however, centered about a *pâpier maché* beast animated by a couple of students possessed of a surplus of animal spirits. Nothing could better indicate the attitude of all present than the success, at a recent celebration, of a little booth built four square and waist high, in the center of which a big, china wash-bowl reposed on the sward. Its promoters barked: "Come on, come on, all you have to do is throw your money in an old-fashioned wash-bowl!"—and that indeed was all. Foolish as it may seem it is nevertheless true that they collected many dollars by this expedient. At another booth you are invited to attempt to cast wooden rings over the heads of a lot of live ducks swimming about an artificial pond. Do you catch the subtlety of the duck, "ducking"? Things such as these make up the attraction of Spring Day; every body comes ready to smile and pay.

The Spring Day shows are closed at one o'clock. They are followed in the early afternoon by an intercollegiate baseball game. Then the crowd hurries to board the observation train for the regatta on Cayuga. In its every detail this is the most picturesque spectacle of the year at Cornell. The observation train, thirty-five or more cars long, banked high with seats and crowded to capacity with a gay freight of holiday makers is in itself a unique sight. It winds ponderously along the shore of the lake, an engine puffing at each end, the while the bright colors of the gowns worn by the feminine passengers stand out in pleasing contrast with the dark rich green of the foliage on the steep slope and the high rock cliffs that overhang the tracks. Banners wave, Cornell colors predominating; heads bob, everybody is interested and excited. Along the shores and on the lake the scene is equally animated. Here thousands of other spectators have been gathering for hours past, coming by motor, afoot and afloat. Over the wooded hills on the far side of the water the sun is sinking low, evening clouds gather and the whole scene is soon aglow with the golden colors of a Cayuga sunset. Now the course has been cleared, the waters are oily smooth, the crews are at the start, they are off. Rhythmically the oarsmen sway, faster forward leap the slender shells, in perfect form the Cornell crew plies the nearly invincible Courtney stroke. From the observation train, keeping just abreast of the racing eights comes a continuous roar of cheering. The last half-mile is reached, it

is still nip and tuck which crew will win, the opponents are raising the stroke, Cornell holds steady, it is the opponents' last spurt, they can not keep it up, true to form Cornell is forging ahead, now it is a half length, a length, that Cornell leads, she crosses the line, the race is won! There comes then a tremendous burst of cheering accompanied by the whistles of excursion steamers and metallic toots from countless motor boats. After that the whole assemblage streams back to the city.

The transfer of the Poughkeepsie regatta to Cayuga in 1920 gave the most important intercollegiate water event of the year a Cornell setting. It was then hoped that this could be made a permanent feature, for the lake course is ideal, both for the racers and the spectators.

When Spring Day has come and gone the year is rapidly drawing to a close. Seniors begin to discuss their prospects, many are seeking positions in the professions that they have been, for four years, training to enter. They are looking backward too, with both pleasure and regret, on their undergraduate careers; with pleasure, because opportunity for the enjoyment of such years came to their lives, with regret because they failed at times to recognize the advantages that were theirs. Like childhood and youth, college life is a stage in the process of existence that may not be recalled. It differs, though, from ordinary periods of life in that it may be missed. But no Cornell alumnus would exchange those four years in his life for any other experience, and it is an inkling of

that feeling which the seniors are now first learning to know. It fastens on them most strongly when they forgather those last few times as classmates at Senior Singing. Men to whom the Cornell melodies are much more familiar by ear than by performance nevertheless once or several evenings seek a place in the group that crowds the portico and steps of Goldwin Smith Hall. For there, while the sun is slowly sinking and the evening light grows dimmer, the seniors as fancy directs give voice to all the Cornell airs, grave and gay. They look out across the quadrangle whose confines their, often unwilling, steps have so many times measured and find that its familiar features have suddenly become tenfold more dear. In front a great throng of undergraduates and faculty has gathered to hear their swan-songs. This audience applauds vigorously their lighter efforts but stands hushed when the singers, soon to pass out from these scenes, with vibrant voices render one of the heritage of grand songs that express the deep measure of affection of Cornellians for Alma Mater.

WHEN THE SUN . .

Then the underclassmen in the crowd feel sordidly grateful that it is not they who must depart for always, the while they extend muttered sympathy to the group on the steps. The seniors themselves fail to appreciate how great their sentimental attachment is for all that spells college days in the first few gatherings for Senior Singing when all the student body is still in residence. But when, examinations over, the numbers leave for home and the ranks of the audience are thinned to fewer than those of the singers, then first the seniors realize how they are to be cut off. Completely appropriate then in sentiment and to the time and place, are the very last stanzas to which they give voice, those of what is perhaps the most beautiful of all Cornell airs in both words and music, the "Evening Song:"

When the sun fades far away
In the crimson of the west,
And the voices of the day
Murmur low and sink to rest—

Music with the twilight falls
O'er the dreaming lake and dell
'Tis an echo from the walls
Of our own, our fair Cornell.

Life is joyous when the hours
Move in melody along;
All its happiness is ours,
While we join the vesper song.

Welcome night, and welcome rest,
Fading music fare thee well;
Joy to all we love the best,
Love to thee, our fair Cornell!

CHAPTER V

STUDENT ACTIVITIES AND OBSERVANCES

THE term "student activities" may be used in a broad sense to include all participation by students, either individually or cooperatively, in affairs other than those prescribed by the curriculum. By adding the term "observances" to the title of this section, it may also be made to include some account of the various occasions, commonly called college customs, in whose fulfillment a large part of the undergraduate body has an interest. Thus broadly defined, student activities and observances comprise many phases of college life. In their relation to the educational purpose of the institution, they range from matters that are directly coördinate with the work of instruction and research, to those which are allied to it, and to such as are in the nature of distractions from it. The efforts of individual students toward self-support, and an enterprise of so dissimilar character as the management of a college dance, are both part and parcel of student activities. Thus some student activities may be held entirely praiseworthy and commendable while the development of others has made them, recently at least, the target for much adverse criticism.

Since the efforts of the working student to win his way have always been considered deserving of sympathy and coöperation on part of the faculties, this kind of student activity may well be consid-

ered first. Possibly no other American university affords the self-supporting student so good opportunities as does Cornell. While not many men, probably, succeed in paying all the expenses of a four years' course by their earnings during the terms of residence, quite a number are able to meet all their obligations by supplementing such earnings with money acquired during the summer vacation periods. Usually the undergraduate can get away from Cornell early in June and need not return until late in September. Thus he has from fifteen to sixteen weeks wholly free to devote to summer employment. It must not be inferred from this that the Cornell summer vacation is unusually long; it does extend over a slightly greater period than that of some other institutions of the same rank, but, on the other hand the Christmas and Easter vacations at Cornell are shorter than is customary elsewhere, only one holiday is allowed at Thanksgiving time, and comparatively few other legal holidays are observed by suspension of instruction—hence, if indeed the Cornell undergraduate has a few days longer vacation in summer, the period of instruction is not diminished thereby.

Opportunities for earning money while in residence no doubt vary greatly in

different educational communities. In the smaller institutions of collegiate rank there is comparatively little opportunity for self-support. Such colleges are located, as a rule, in small communities, the business enterprises of which are themselves, commonly, in large part dependent on the custom of the students and of the institution. Moreover, the majority of the students are drawn from the immediate locality in which the institution is located, and, in general, from families of no great affluence. The institution itself being small, its administration is not complex; consequently is carried on almost wholly by its regularly employed faculty and officers. Thus, as neither the college nor the student body spends much money, there is little to be earned. On the other hand, it will be noted that of the large universities in the East, with which Cornell may be compared in this connection, most are located in, or very near, large cities. This kind of location affords both a variety and multiplicity of employment for students that is not available at Cornell. But under such conditions the working student has little part in the university life. Moreover, even if he finds employment in the immediate university community, he is usually at a great social disadvantage in comparison with the status of students who pay their way with money from home. This is a handicap, and must be considered in the question of self-support while at college. For instance, a large number of students in almost all institutions find employment as table waiters.

Such service carries no stigma with it at Cornell. Men who have waited on table are elected to class offices, make fraternities, and commonly are the good friends of those whom they serve. The compensation for waiting on table is usually free board and the work requires about twenty-five hours per week. It should be noted that the spread of the cafeteria system at Cornell is responsible for a marked reduction in the number of waiters needed.

Free lodging is the usual compensation for tending furnace at one of the numerous rooming houses for students, though at many private residences similar service is rendered for cash wages. Such work has the disadvantage of necessitating both late hours and early rising. Yet it is surprising to learn how much outside labor some students can perform without suffering either physically or mentally as a result. Several years ago a man was graduated from the Sibley College of Engineering with high marks and good health, who had, during his undergraduate years, regularly risen at four, fed the furnace at his rooming house, then walked half a mile to the college classrooms where he performed some light janitorial work, came back, had his breakfast, waited on table and then went to his classes. At noon and night he also waited table and looked after the furnace. Yet this student managed to find time to see nearly all the intercollegiate athletic contests that occurred at Ithaca, and there again turned his presence to good account by securing a position as ticket taker at the grandstand, thus securing his admission and a

money payment in addition. Of course, only a few men are capable of carrying such a load of work and also succeeding in their studies, especially when meeting the exacting schedules of the engineering colleges. The great majority of college students who seek employment desire only to husband and supplement their resources, rather than to earn all their expenses, and it will be appreciated that the money saved each week by securing free board and room means a very considerable reduction in outlay. At Cornell the total expenses for a year can be kept down to six or seven hundred dollars by the practice of rigid economy, and free board and room will account for at least half the sum.

Most student workers are unskilled laborers. In addition to waiting on table and tending furnace, many, consequently, are also employed at such tasks as mowing lawns, washing windows, polishing floors, as chauffeurs, clerking in stores, especially in those that sell student supplies. Such men are also available for the work of returning books to the stacks at the University Library. The usual payment for services of this kind is from twenty to thirty-five cents per hour. Students capable of operating typewriters or taking dictation are almost sure of employment at considerably higher pay in copying theses, lecture notes, professors' manuscripts and the like. Mechanical and architectural draftsmen earn considerable money by making drawings for books. Soliciting subscriptions for periodicals and selling books, room decorations and pictorial calendars from room to room

net a handsome profit to a number of students who have the salesman's gift of persuasion. Musicians are in great demand; they find places in the orchestras of local theatres and in some cafeterias. Violinists and pianists, particularly, are much required for playing at innumerable dances. They charge from two to three dollars per hour for their services. A student is each year appointed to ring the University chime, a position to which both salary and prestige attaches. Again, student officers of the cadet corps receive salaries that may be as high as several hundred dollars yearly. Upperclass students do some tutoring, at from two to three dollars per hour, though most of this falls to graduate students. About fifty undergraduates are employed in the work of instruction with the title of student assistant, and are paid from one to five hundred dollars per year. These men prepare and arrange laboratory materials, operate stereopticons, and grade reports and examination papers.

Before the war many students were engaged in business enterprises. There were boarding-houses and cafeterias under student management, one cafeteria was cooperatively owned by students. Individual students owned and operated stores, a floral shop and a barber shop have been included in the number. The most common device of the student founders to insure the permanency of such enterprises is to organize the business on a competitive basis. Students from successive entering classes are given places in the management as a reward for the best showing made in business

getting and other competitions organized to permit of a demonstration of general usefulness. This scheme is particularly adaptable to agency businesses, of which the laundry agencies are the most conspicuously successful. Much student laundry is shipped to large laundries in neighboring cities. A considerable force is needed by each agency to solicit accounts from the entering students in fall, and during the year, to gather up the bags of laundry each week, to deliver the packages of freshened linen and to collect the bills. For such services the competitors are paid a fixed wage and the most industrious and successful of their number is made assistant manager in his junior year, and becomes the manager in his senior year. The assistant manager and manager share the profits of the enterprise, which amount in some cases to several thousands of dollars annually. Student rooming agencies, one of which is now officially recognized by the university authorities, and acts under their supervision in locating new students in congenial quarters, are conducted on similar lines. One man earned eight hundred dollars more than his expenses during his college career in purely commercial enterprises. The Ithaca Gun Company uses the free afternoons of some fifty undergraduates who have mechanical skill, at high pay and finds their labor particularly efficient. No statistics are available, but it is a safe estimate that at least five or six hundred Cornell students are each year earning all or part of their expenses in term time.

Self-help is a student activity in the sense that it requires much energy that might be devoted to scholastic duties, but it is a means to an end, the attainment of a university education, and as such the individual seldom permits it to interfere with his principal purpose except perhaps in such instances where the financial returns are so large as to overshadow completely the original motive. But the term student activities, in the sense in which it is generally used, applies only to the organized enterprises initiated and carried on by large or small groups of undergraduates as side issues, mainly distractions, from the chief end of the university. These exuberances, if such they may be called, are accorded recognition and a certain degree of sanction and supervision by the faculty of the university. Under this category come athletics, student publications, debate teams; musical, dramatic, intellectual, sectional, social and honorary clubs and associations, and the political organization of university classes, including the system of class officers and committees. The control of the university varies from strict supervision, with regard to the eligibility of players or performers and approval of schedules, in the case of organizations that represent the university abroad, as, for instance, athletic teams and the musical clubs; to a general requirement of the maintenance of a satisfactory standard of scholarship in their studies and decency in their print from the editorial boards of publications. A large number of organizations are simply permitted. So long as they do not give

offense to the community or bring the university into disrepute, such organizations may continue to exist with practically no supervision on part of the general faculty. The university authorities do, however, reserve the right to regulate or abolish any association of undergraduates that may, in their opinion, be prejudicial to the maintenance of a proper standard of scholarship or detrimental to the general welfare of the community. Under such slight restraints a multitudinous variety of organizations have sprung up, the total membership of which is large and complexly interwoven. For all of these the university is, in some sense, sponsor. The great development, and the important place and influence these associations have in Cornell student life is, no doubt, owing in large measure to the fact that Cornell, only, of all the large American universities is located in a small community, distinctly remote from any large population center. Since the varied places to go, and the many things to do, that are available in a big city are not to be found at Cornell, the students must, of necessity, in large measure provide their own distractions. This accounts for the remarkable number of undergraduate organizations and the great interest in such affiliations at Cornell.

While the great development of student activities finds its reason in the conditions stated above, it should be noted further that their existence is justified by undergraduates on altogether different grounds. Their functions, as conceived by the average student, are, first, to advertise the institu-

tion, second to promote community interest, loyalty and pride in the alma mater, and third, and possibly most important, to supplement the courses of instruction (largely theory in undergraduate opinion) with opportunities for participation in practical affairs, conducted on the same competitive basis that is in effect in the business world. Student activities, moreover, furnish a means for acquiring prestige, the fame of being a prominent student and, consequently, a reputation for leadership among one's fellows.

As the resources of the university are hardly adequate to provide for the large enrollment of the past few years, it would seem that advertisement to attract still greater numbers, without also securing a greater endowment, is not a great help. If the advertising is thought of as a proclamation of Cornell's facilities for students who need her training, it can, indeed, be defended, and if, further, it is an aid in securing benefactions the advertisement the institution gets from student activities may be well worth while. It is also true, no doubt, that the various organizations do much to promote community interest. The other two ideas, that of supplementing university instruction by practical training and the acquirement of college honors have, however, the chief place in student imagination. It will serve for better understanding to defer discussion of this point of view until after a survey has been made of the extent and ramifications of the student-activities world.

First may be considered a number of clubs and

associations that come into a single general class because they are in many cases promoted by the faculty, and have, as a rule, some intellectual purpose. These are, perhaps, the least typical of the student activities. In general their names will indicate their scope. Thus we have the Ethics Club, the Cornell University Flying Club, the Poultry Association, the Cornell Civic Club, the Rifle Club, the Agassiz Club, the Chess Club, the Cornell Forestry Club, the Cornell Masonic Club, Le Cercle Francais, the British-American Club, the Cornell Menorah Society, and the Pomology Club. This list is not altogether inclusive and some of those mentioned may not have survived the war. Membership in these is open, as a rule, to all undergraduates on either application, expression of interest, proficiency or avowal of similar affiliations, though in some cases it depends on election. The honorary scholarship societies, Phi Beta Kappa, Sigma Xi (science) Tau Beta Pi (engineering) and the newly established Phi Kappa Phi, general scholarship society, are akin to these in one sense, but membership is attained only by election and depends on a high standing in the several studies and promise of achievement in research. A third class of societies is comprised of the various sectional clubs. In general these also are described by their names, as: The Southerners, the Dixie Club, the Maryland Club, the Adirondack Club, Exeter Club, Hill School Club, Cornell Chicago Club, Rocky Mountain Club, Latin American Club, Culver Club, and Chinese Students'

Club. The Senators are Washingtonians, Scalp and Blade members hail from Buffalo, while those in Mabrique come, presumably, from the boroughs of Manhattan, Brooklyn, Bronx, Richmond and Queens, note the composite name.

The fact of residence in a locality represented by a sectional club as a rule entitles any undergraduate to membership in the organization, but in some cases he may join only on invitation from those already members. The sectional clubs, in which the latter provision is effective, might perhaps better be classed with the so-called social clubs, in all of which membership is by election. Of the social clubs it will suffice to suggest something of their nature by listing the names: Book and Bowl, Manuscript, Sunday Night Club, Beth L'Amed (Mummy Club), Majura and Scroll and Spade. Several of these have been characterized as little more than mutual-admiration societies. Slightly different, again, is the Cornell chapter of Sigma Delta Chi, professional journalistic fraternity. One of the principal functions of this organization is to stage an annual dinner, considered the most *recherché* of such affairs in the Cornell year.

Certain of the societies listed in the above paragraphs are open to both men and women students, but in most cases only men are eligible for membership. Accordingly, there are also a number of wholly feminine associations, among which may be mentioned the Cornell Women's Dramatic Club, Sports and Pastimes Association, Mortar Board,

Raven and Serpent, and Sedowa.

In the sense that all these clubs and associations exist for and because of the university and not it for them, and in that they do, in some measure, reflect the life of the community outside the classroom, they come under the classification of *student activities*. But they belie this grouping in that the *activities* of their members are not on the whole very strenuous. Their membership lists are made up by application or invitation to join, while in the *typical* student activity participation results from competition and achievement. Physical prowess, musical or dramatic ability, business enterprise, and facility with pen and pencil are each made the measure of eligibility for one or several branches of student organizations that require actual performance on part of the individuals in them. These competitive organizations are also more representative in that any undergraduate is free to enter their contests and try outs on his own initiative.

In support of the undergraduate contention that student activities are worth while because they supplement the training offered by the university with productive experience, the field of student publications could probably be cited most convincingly as an example. In striving to become identified with the management of the more successful of these enterprises the student competitors have a double incentive, the prestige that is acquired by a position on their staffs and the monetary reward. Probably the honor attached to

the office is as much, if not more, in the minds of the competitors than the financial returns, but the latter are by no means of insignificant account. Thus the Cornell Daily Sun, the student morning newspaper, carries about one hundred dollars' worth of advertising in an average daily issue. It may be estimated that its yearly revenue from advertising and subscriptions amounts to thirty thousand or more dollars. Each year two freshmen and two sophomore competitions are held to fill the places on its staff made vacant by graduation and other causes. The one open to freshmen in October for editorial positions is typical of all the competitions for places on the publications and its conditions may, therefore, be stated in illustration of their nature. The contest extends over a period of approximately seven weeks and is divided into a preliminary and final part. The preliminary part occupies about two weeks and at the end of that time the more promising candidates are started once more on an equal footing for the remaining period. At the end of the competition the one man most acceptable to the existing board is given a permanent position on the staff. This carries with it also the possibility of election to the position of editor-in-chief, or of managing editor at the end of the junior year. The success of a candidate is measured in part by the amount of acceptable local news he turns in, but his initiative and personality, as judged by the men already elected to permanent positions, have considerable significance in the final choice. In

competitions for places on the business management the work consists in securing subscriptions, selling advertising space and collecting moneys due the paper, and the candidate who shows, again according to the judgment of the existing board, the greatest business ability and enterprise is adjudged the winner. As on the editorial side the posts of business manager and circulation manager are held by seniors. Fifty-eight freshmen entered a recent editorial competition, which gives some suggestion of the degree of interest shown in these trials.

As a college newspaper the Cornell Daily Sun undoubtedly ranks among the best in the country. Its articles on student affairs are usually quite accurate and newsy, and its reports of academic occasions, such as university lectures, in recent years are a notable improvement on the, before the event, speaker's statement it had been the custom to publish. But there is still opportunity to develop further the news interest of these intellectual events. What the four thousand subscribers of the Sun would like to read about these lectures is: What did the undergraduate reporter think of them, was he interested and impressed or bored and irritated, and why? The great difficulty of securing and writing numerous such stories is, however, that it would entail an enormous amount of underclass "compet" time being spent on outside activities. As it is the faculty is complaining that the competitions are so exacting as to cause an almost complete neglect of studies on

part of the leading candidates during the period of the trials. If this condition endures the whole system may come under faculty ban. More competitors must be secured or the situation met and remedied by creation of numerically much stronger, permanent, "reportorial" and business staffs composed of sophomores, juniors and seniors, all sharing in the prestige and more tangible perquisites of the organization and having a voice in the election of the senior chiefs. Such an enlargement of the staff would serve also to eliminate, in part, oligarchical and *persona grata* tendencies in the management of which complaint is heard from time to time. A much greater number of undergraduates would also receive something more substantial than "the experience" and the "thanks of the staff" in return for their efforts during the competitions.

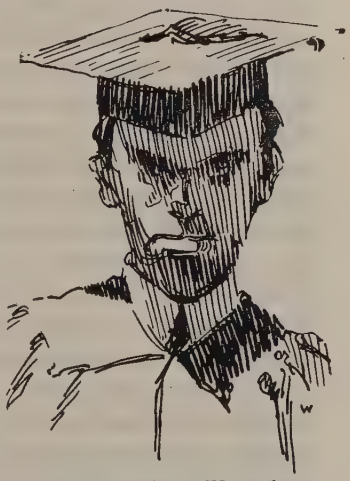
Competition for places on the business staffs of the other Cornell student publications that have a wide circulation are equally strenuous with respect to the amount of time they require. But it should be noted that the Sun places all its profits, in excess of modest salaries, into a sinking fund for the eventual establishment of a university press, and the board of the Cornell Widow, the comic semi-monthly, recently voted to pay all its profits into the university for a similar purpose. Artists and jokesmiths find places on the Widow's staff.

In 1920 the Widow carried off all honors in a contest for college wits conducted by one of the

leading humorous weeklies of the country. The Cornell Era was, in 1924, superseded by a pictorial sheet. The Era was the earliest of Cornell student publications; founded, as Chancellor Jordan, Cornell '72, recently said, because the student body of that time felt that a new era in education had started with the opening of Cornell. In those days the Era had a literary flavor, a field it had quite completely given up later in favor of timely articles on student affairs. There were formerly, also, two annual publications, The Cornellian, published first by the fraternity group and later by the junior class, and the Cornell Class Book, containing the record of the senior class. These volumes are now combined into one publication issued by a joint board comprising the "Cornell Annuals, Inc.," places on which are now, as in the case of the other publications, filled by competition. The pages of The Cornellian comprise a catalog of the personnel of faculties, upper classes, fraternities, clubs, athletic teams, boards of publications and committees, together with a general record of the year's events. There are also portraits of every member of the senior class. The new pictorial magazine, the Cornell Graphic, is a Cornellian replica of the illustrated supplement of a Sunday newspaper.

Other student publications have each their special circle of readers as indicated by their titles: The Cornell Countryman, the Sibley Journal of Engineering, The Cornell Law Quarterly, The Cornell Chemist and The Cornell Forester. The

first two are issued each month, two are quarterlies, the last is an annual. Though not an undergraduate venture in any sense, the Cornell Alumni News needs to be mentioned here to complete the roll of publications that reflect student life in some measure. As many as two hundred different students are at work on these publications at some time during the year and over one hundred men are regularly on their staffs for the whole of the college terms.



In the student publications undergraduates have an opportunity to voice their opinions on a variety of matters. Debate associations had a quite prominent place among student activities in earlier years, but they have since suffered considerable decline. A Debate Council still exists with machinery for arranging intercollegiate debate meets with Pennsylvania, Columbia and other colleges and for selecting the teams that represent Cornell in these contests, but the debates themselves evoke comparatively slight enthusiasm. A number of young orators try for places on the several Debate Stages, contests for university prizes founded in the period when debate had more importance as an undergraduate activity.

Dramatic organizations are in a more flourishing condition. This is particularly true of the Masque which devotes its energies generally to the production of one or two farces or musical comedies during the year, though occasionally more serious plays are undertaken. To qualify for membership the undergraduate must be able to entertain in the manner of professional vaudevillists. There is also a Dramatic Club which recognizes histrionic talent of the legitimate order and each year stages a number of meritorious productions. In addition to these general organizations several societies, whose activities are allied with those of the modern language departments occasionally choose casts from among their members to present plays in foreign languages, sometimes on a quite elaborate scale. The Cornell Savage Club, the only branch of a famous original dramatic society of the same name in London, though not an undergraduate organization primarily, each year elects a number of students to membership. Its productions are like those of the Masque, perhaps even more frivolous, but the Savage Club has also a social side. Quite frequently its members entertain prominent professional actors who appear at the local theatres.

While the combined membership of the two general dramatic societies consists of about ninety undergraduates there are, in the musical organizations of similar scope, the Cornell Glee Club, the Cornell Mandolin Club, the Cornell Band and the Cornell Orchestra, more than two hundred men enrolled. This larger membership list, and the

esteem in which membership in the first two of the organizations mentioned is held, are in part due to the fact that the Glee and Mandolin Clubs make an extended concert tour during the Christmas vacation. Usually performances are given in seven or eight large cities during this trip and the clubs have traveled as far west as Denver. Only a selected number from the whole membership can be taken on the tour and, as the clubs are quite lavishly entertained with receptions, dances and smokers by the alumni resident in the different cities visited, there is naturally a keen rivalry to make the trip. Consequently each member of these organizations is careful not to miss practices and rehearsals. The University Orchestra has an endowment of twenty thousand dollars, provided in his will by the late G. W. Hinlsley, '15, the income from which is used for equipment, and for scholarships to which only members of the organization are eligible. In addition to the out of town concerts of the Glee and Mandolin Clubs, there are also a number of public appearances of all four of the general musical organizations during term time in Ithaca. A Festival Chorus, largely made up of undergraduates, is trained almost every year, and a separate college organization, the Agricultural Glee Club, has also been maintained.

Whatever the relative status of the other organized student activities there can be no question but that athletics leads them all in popularity. It might, perhaps, be fair to say that the popularity of a student activity is in inverse ratio of its

intellectual interest. In any event only members attend Glee Club rehearsals while many undergraduates keep faithful watch of the football practices. Not that athletic interest centers exclusively on football. Crew, track, and cross-country running are other major sports, and the minor sports, basket-ball, lacrosse, hockey, fencing, wrestling, swimming, soccer, tennis and golf have each a number of followers. The training in riding afforded and the presence of the horses needed by the artillery unit of the cadet corps have given opportunity for the organization of a polo team. Probably as many as five hundred different students try hard each year to secure a place on some one of the varsity squads and possibly half this number are retained for the season and give from two to three hours of their time each day, sometimes for three months in succession, to practice and taking part in the events. For the major sports training tables are maintained and the men who are privileged to eat at these boards must live the simple life. They are not supposed to smoke, go to the theatre or stay out late at night. Even soft drinks are denied them. They are urged to find time and energy to keep up with their studies, though this, except for men of unusual capabilities, is a difficult matter. Physical exercise in moderate doses is a relaxation from mental effort and gives stimulus to further studious activity. But the football and

crew men draw far more deeply than that on the store of energy possessed by the average man. The Cornell faculties, on their part, can see no good reason for permitting an athlete to secure the Cornell degree without his keeping up to the standard of scholarship required of other students. It follows that the man who makes the football team, or the varsity crew, and is also graduated at the end of four years, must be the possessor of unusual ability and energy. As a near approach to the ideal, all-round, man he commands the admiration of both faculty and students.

In view of the elaborate scale on which intercollegiate athletics are now conducted, with contests in distant cities, gate receipts of large figures, and much paraphernalia for each sport, it is not surprising to find that a manager and assistant manager is required for each team. It is the business of these men to care for clothing and properties, to arrange for transportation and attend to all the routine work connected with the various contests. Similar positions are part of the organizations of the musical clubs and the Masque. These men work under the supervision of a graduate manager, a salaried official employed by the Athletic Association. The undergraduate manager in each branch is a senior, his assistant a junior, and under them are two sophomore and freshman competitors, each one striving to prove himself worthy of succession to office in his upper-class years. These rivals carry water, hold blankets, sell tickets, try to be always on the job. It is a curious

sort of perversion that at an institution of higher learning there should be active rivalry in almost everything except the acquirement of knowledge.

There are, however, several phases of student activities that do not come directly under the competitive system. The class honorary societies, for instance, are self perpetuating. But as these societies usually confer membership on the basis of particular distinction in other student activities, they are in effect the ultimate goal of the various competitors. To them are elected the star athletes, the editors-in-chief of publications, the business managers of various enterprises including those of the musical and dramatic clubs, as well as the leading performers. Sphinx Head and Quill and Dagger are senior societies, Aleph Samach is the junior organization. Some of the colleges have further their own senior honorary societies, as for example, Heb-Sa and Helios in the College of Agriculture. Although these associations are self perpetuating, their elections generally meet with the approval of the men particularly interested. The two senior societies wield a considerable influence, though this has latterly been made effective through the agency of a Student Council, which now exercises supreme control over all branches of undergraduate activity and is an elective body. The senior societies themselves were accepted, formerly, as the supreme arbiters and mentors in student affairs and any project that did not meet with their approval was taboo. As these societies are at the apex of the student activities system,

they can usually make their rulings effective with those most concerned and, having the student publications under control, initiate such movements or spread such opinions as they feel are worth while. The "Red Key" dispenses hospitality to visiting athletic teams and has thirty juniors, the president of the Savage Club and the head cheer leader as its members.

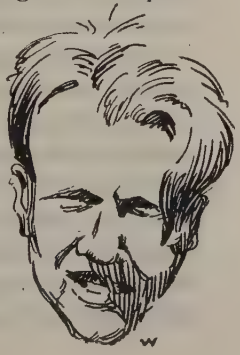
It is noteworthy that practically all the acrimonious debate in the student world centers about the one phase of undergraduate life that is not directly subject to the competitive system, namely class politics. Class members of the Student Council are selected by ballot. The contests formerly centered about the office of the class president, as that person once had a considerable patronage to bestow. This consisted, primarily, in the appointment of committees to take charge of the dances, banquets, rallies and other occasions that come under class auspices. As committee positions afforded considerable self advertisement, without necessitating the expenditure of great effort or the display of special ability, they were much sought after. It was, for instance, particularly nice to be in the lime-light during Junior Week, when fair guests perused dance and other programs and assumed that the committee lists were made up of the prominent men of the class. In former years a committee position also often insured quite valuable perquisites, as, for example, gold watch fobs as souvenirs of the occasion bought with part of the proceeds. This has been wholly done away

with. All accounts are now audited and any balance put in the class treasury. But it may readily be perceived how the prejudice against general elective and appointive officers arose, and why each year there were accusations of ring politics with "letters to the editor" and the proposal of various schemes to counteract the tendency to fill committee lists with the names of friends and henchmen. Appointments tending to greater efficiency in committee work seems to be the reform most desired. In the interest of efficiency there has been much agitation that the number of men on each committee be greatly reduced. Yet several years ago no fewer than three hundred and seventy names appeared in a total of twenty-four committees. One-third the number, no doubt, could have attended much better to all the business.

The titles of these committees suggest their scope and purposes. There exist the Student Council, a Freshman Advisory Committee, committees on Senior Ball, Senior Banquet, Class Day, Alumni Pledge, Convocation Hour, Junior Promenade, Junior Smoker, Sophomore Cotillion, Sophomore Smoker, Sophomore Rush, Freshman Banquet, Freshman Cap-Burning and Spring Day. The Student Council now has greatest importance. This committee formulates the rules for freshmen and acts as intermediary between the faculty and student body on matters concerning student governance and deportment. The pledge of the Student Council committee, that a given evil will be abated, is usually considered the end

of such a difficulty. The Council also names all the undergraduate committees; its mandates generally are respected by the classmen.

Membership in a club, the winning of a place on the editorial or business staff of a publication, making an athletic or debate team, election to a musical or dramatic club, election to class office, appointment to committee positions are each and all "student honors." Every such achievement, and some not enumerated, is marked by the conferring of a diploma certifying to the fact. This practice has given origin to the "Order of Shingle Hunters." To belong, one must be able to point to at least so much space as one side of a room decorated with nicely lettered sheep skins, properly ornamented with seals and tastefully framed; signifying a wide connection with student activities. It would be difficult for an outsider to conceive how much of a fetish the acquirement of a variety of such tokens has come to be among a certain element of the undergraduate body. Indeed the acquisition of its diploma is often of greater import to the shingle hunter than the interest of the particular activity. In a word, the possessor of a number of the more coveted of these certificates considers himself one of the elect in the student world.



It still remains to give some account of the student observances, as those functions, social and agglomerate, that give most of

the committees an excuse for existence may be collectively termed. Certain of them afford spectacles at once picturesque and interesting, the latter because of the sidelights they throw on student life. Others, as suggested above, are merely agglomerative, consist of devices for getting a crowd together in the interest of some special enthusiasm. Still others are of a purely social character, dances for the entertainment of guests and the banquets of the various classes.

Of the banquets little need be said except that they promote democracy and that the modern order has finally ended the serving of alcoholic beverages at Cornell student gatherings of this nature. Once upon a time the Senior Banquet was apt to be an uproariously wet occasion. But even before prohibition was enforced there was an agitation against the custom of treating and drinking; accordingly, it came to be the affair of the individual rather than of the student community or any definite group in it. The various stunts, smokers, crew and football celebrations are "get together" occasions at which athletic prospects are discussed, past victories and defeats reviewed. At the Junior Smoker it is the custom to make formal presentation of the varsity letter and class numerals to the athletic stars of the various teams. This is the great athletic meeting of the year. There are, however, more such athletic rallies during the year than the committee list indicates, in fact it would seem that they are filled into practically every dull interval. At each of them the coaches, cap-

tains and managers exhort the undergraduates to be loyal to the teams, to search out promising men for each sport and to encourage such men to enter the competitions. It does not require much oratory to fire enthusiasm at such gatherings and they are usually marked by overflow attendance.

During term time university dances are confined to "All Cornell Hops" at the Armory and the invitation affairs of various organizations. But two great events of this nature, the Junior Promenade and the Sophomore Cotillion, were the central features of Junior Week, which occupies the interval between the first and second terms. These big dances were held in the Armory, which in recent years had been crowded almost to suffocation by the dancers, the growth of the university having been such that the throng wishing to participate had utterly outgrown the accommodation afforded by the old building. The erection of the new Drill Hall with floor space sufficient for the seating of an audience of eight thousand has relieved this congestion and has made the Junior Promenade a truly wonderful spectacle. The difficult problem of the acoustics has been solved by use of great curtained hangings and the placing of the orchestras in specially constructed, raised boxes. As it is, the picture of color, light and animation presented on each of these occasions is quite charming. All the bareness of the walls and roof is hidden under elaborate canopies of ribbons and flowers, with a myriad of electric lights for illumination. Boxes for the accommodation of guests

between dances extend completely around the sides of the room. While the general effect remains the same, the color scheme and details of the decorations vary from year to year; formerly the whole arrangement for the Sophomore Cotillion was removed and replaced by an entirely new setting for the Junior Promenade, although the time interval between the close of the Cotillion and the beginning of the Promenade was only forty or so hours. This entailed some rapid work on the part of the decorators.

The first calendar hour of spring has been ushered in by much tinpanning, catcalling and shooting of blank cartridges, the celebrants appearing at the upper story windows of practically every fraternity and rooming house on the hill; to the intense aggravation of the local police and resident population. This making of the night hideous is a manifestation of the relief felt by a number of healthy young animals that the long repression of winter has come to an end. Though deferred to a later date when skies are sure to be clear and the air balmy, the official Spring Day celebration had its inception in a like feeling, though its original significance was almost at once lost to sight because of the ends the occasion was made to serve. It is a merry scene full of color.

The present purpose of Spring Day is to secure money, much money, in a short time and for little outlay, to enrich the coffers of the Athletic Association. For several years now the show has been scheduled on the morning of Navy Day, an intercollegiate baseball game occupying the afternoon and the annual regatta on Cayuga the early evening. The big day closes with the Freshman Cap-Burning on the Playground. All these events on one day insures the presence of a throng of out of town visitors and their contributions naturally do much to swell the total receipts of the Spring Day shows. The faculty, recognizing the compelling demand of the occasion, has agreed to make it a holiday. Something has already been said of the nature of the Spring Day shows. Although criticism of these offerings is perhaps out of place, it may be suggested that the spectacles for the past two years have not come up to the standard of novelty and wit attained in former days. Let the younger generation look to its laurels!

The Cap-Burning, although it has seemed a sort of anti-climax to a very full day, nevertheless deserves a word in this account of undergraduate observances, for it is a very happy event for the first year men. On every week-day of the year, as student custom has prescribed, the freshmen must wear the dingy gray caps that mark their class. Than these, nothing more insignificant in the way of headgear could well be devised. It is a difficult matter for even the most irrepressible youngster to make a jaunty appearance with that

cap on his head; though it must be confessed that some come very near achieving this seeming impossibility. When eventually the day on which they may lay these marks of a lowly status aside for always comes, it follows that the occasion must be accompanied by fitting ceremony and collective rejoicing. Accordingly a huge pyre of boxes and barrels is built up on the broad level of the Playground. A huge effigy of the Freshman cap surmounts the pile. A torch is applied and, as the flames begin to leap skyward, the whole freshman class assembles and snake dances past the bonfire, each individual member tossing his cap high onto the glowing altar, the huzzas of the spectators mingling with the loud cries of the freshman at the culmination of the glad sacrifice. Ludicrous to be sure, but at any rate one of the few rites among many performed in this world that has not lost any of its significance for the participants.

CHAPTER VI

FRATERNITIES AT CORNELL

THERE are some seventy-odd Greek letter fraternities and similarly organized, local, secret societies at Cornell, probably a greater number of such student associations than exists at any other American university. Nearly one-half of these have been established within the last fifteen years. About one-third of the five thousand regular students in the university are fraternity men. In addition there are probably three hundred women in twelve sororities. The rapid increase in the num-

ENTRANCE TO A FRATERNITY LODGE

ber of these societies has brought what is rather vaguely termed the "fraternity question," at other institutions in a position perhaps most succinctly presented by the following sarcastic quip from the Cornell Widow: "Why didn't he make a fraternity?"—"Because he couldn't get enough men together." That was not meant kindly, nevertheless it reflects what has happened at Cornell and what will probably continue to happen. New organizations have been many in the past decade, no doubt others will come into existence in the future unless conditions change. In other words, if the number of fraternities were to be doubled or tripled, any semblance of that phase of the fraternity question would probably cease altogether to exist.

The fundamental reason why fraternities are so essentially a part of Cornell student life, call them a necessary evil if you will, is that the university has not during the recent past provided dormitories for the men students. At present several residential halls, accommodating about five hundred men, are available on the campus and the erection of others seems assured. But even these accommodations promise to do little more than take care of the growth in student population. Except as men may find a place in the university dormitories or become members of a fraternity, they will need, as in the past, to shift for themselves in private rooming and boarding-houses about the town. Because such life is not nearly so pleasant in general, and does not afford the social and other oppor-

tunities open to the fraternity man, is why the national and local secret societies have, and will probably continue to flourish greatly at Cornell.

It is immediately pertinent, therefore, to inquire into these advantages of membership in a fraternity. Of first importance is the fact that practically every chapter and society owns or leases its house or lodge, thus election to membership in a society insures congenial associates. Congeniality is the ultimate qualification for membership in any one of these organizations. This does not mean that they are all cast on the same rigid lines, that a man who would fit in very well with one group of fellows would necessarily be equally eligible for another group. Indeed the ideals, ambitions, interests and opportunities of the different organizations are probably quite as diverse as the elements of the whole student body and those run nearly the whole gamut of human nature and society. Nevertheless, sympathetic relations are essential to the success of any chapter, hence the careful choice of men by each. The fraternity man at Cornell, therefore, is first of all provided with a roof that he may well call home during his college career, and is assured of congenial companions during that time. He rooms and dines with kindred spirits. He has a place to entertain his friends and relatives from home, where he may keep them over night when they come to visit. His hospitality is ably seconded by his intimate associates. He participates, as a member of a recognized group, in university social and athletic events: thus his so-

ciety has a box at the college dances; is a member of the interfraternity bowling and baseball leagues.

Other advantages of a compact organization naturally accrue. Thus the upperclassmen in a house give the freshmen the benefit of their experience along various lines. They suggest what phase of student activities he may enter into with a chance of achieving distinction: urge him perhaps to take up some branch of athletics. They can help him with his studies; in fact most fraternities rather rigidly supervise the university work of their underclassmen, securing reports of their standing frequently from the faculty. Less commendable, from the faculty viewpoint, is the common practice among the chapters of keeping on file sets of lecture notes, reports on experiments and laboratory exercises, as well as sets of examination questions in the various courses, and making these available to the students pursuing such work. While there is nothing inherently bad in this, it is, nevertheless, often inimical to good scholarship in that the student may tend to depend on the work of his predecessors instead of doing it himself. Thus he takes less full notes at lectures, is prone to be superficial in his conning of lessons, and trusts to cramming on the basis of previous examination questions to pass up his courses. He may, indeed, actually copy a report, though that is a dangerous expedient and, because readily detected and punished often with expulsion from the university, is probably resorted to only infrequently. Such helps, good or bad, are denied the inde-

pendent student. Since May 2, 1921, an Honor System, administered by the undergraduates, has been in effect. Examinations are not proctored by faculty members, and students report frauds inside and outside the class room.

Though only about one-third of the undergraduates belong to fraternities, their members have in recent years constituted nearly fifty per cent of the number of men dropped from the university at the end of a term because of poor scholarship. Moreover, as high as seventy-five per cent of the upperclassmen dropped at one time have been fraternity men. This, however, is not as desperate as it appears, for the total number of men dropped at the end of a term has not much exceeded one hundred. Such figures are probably accounted for by another factor in fraternity life that adversely affects scholarship; the opportunity and temptation to devote too much time to social intercourse and recreation. With a boon companion or companions always at hand it is harder to resist the allurement of a game of cards, or tennis, or of an evening at the theatre. On the other hand it should be said that some fraternities maintain a high standard of scholarship, despite these counter temptations and attractions of good fellowship.

Many good people consider the greatest benefit of a college career to be its social opportunity. That is a quite common attitude among undergraduates. From the standpoint of the purpose of the university, in view of the fact that it is an eleemosynary institution, supported by an endow-

ment provided solely for the advancement and diffusion of knowledge, one is tempted to take immediate issue with that conception. Yet it must be admitted that these social, that should properly be only secondary advantages of a university career, are often of preponderating importance in after life. Thus the diffident, uncouth, or perhaps presumptuous novitiate, is taught the social graces, learns to meet people, acquires conversational skill and is made mindful of the rights and personal idiosyncrasies of others. In these things he both gives and takes. In his own society he acquires, during his four undergraduate years, a wide fraternal acquaintanceship and, if his be a chapter of a national organization, a hailing fellowship with a great body of men who will be inclined to help and stand by him in the world of business.

It has been suggested in a previous paragraph that every student sociably inclined is potentially eligible for fraternity membership. If he is not elected to one of the existing organizations, or perhaps does not find the members of such groups that he may be invited to join congenial fellows, he may "get enough men together," kindred spirits, and found one of his own. Of course there are limitations. Considerations of expense deter many students from either entering or organizing a society. The unavoidable monetary obligations of membership in a society are, of necessity, greater than the cost of an economical, independent existence, if the chief benefits of a fraternal association, as enumerated above, are to be achieved.

Instead of providing only his own study and bedroom the fraternity man must contribute to the upkeep of a house in which much space is devoted to general assembly rooms. This additional cost is not, however, so great as might be thought necessary, for the profit of the landlord and boarding-house keeper are largely eliminated by the internal ownership and management. Statistics secured from a number of fraternities show that room, board, dues and other assessments for the general expense vary between four hundred and eighty and eight hundred and fifty dollars, annually, according to differences in their scale of living. Some societies have very pretentious houses and entertain lavishly. In certain instances the cost is considerably higher than the maximum stated, it is seldom lower than the minimum given. On the other hand the independent student may eke out a decent, though very economical existence, on as little as four hundred dollars and a quite luxurious one at an expense of some seven hundred dollars for room and board. The university provides women students with board, furnished room and a limited amount of laundry service in its two dormitories at an average cost of four hundred and eighty dollars per year.

It should be stated that the fraternity man must, in addition to the general expenses noted, pay also an initiation fee which may be only a nominal or a quite considerable sum. It is further expected that he will dress presentably, provide evening clothes, and have pocket money enough to

indulge, not necessarily extravagantly, in the ordinary student diversions. He will purchase a season ticket to the athletic events, contribute to various student funds, subscribe to one or more college periodicals. These items jointly may mount up to a considerable sum. Accordingly, it would probably be fair to set one thousand dollars as the nearly minimum annual expense, excluding tuition, of the fraternity member at Cornell. In exceptional instances it will be found that men not able to meet even such a minimum of expense are nevertheless members of a society and in good standing. But such men are usually able to make up the difference by service in the fraternity or with funds secured by outside effort, perhaps in employment obtained through influence of the organization.

It does not follow that every student able to afford it desires, or will accept membership in a fraternity if it is offered to him. Many parents will not permit their sons to join a fraternity either because of the extra expense involved or because they fear such associations may divert too much attention from studies. Again, there are some independent spirits who would chafe at the presumption even of any set of their peers passing judgment upon their merits and demerits. Indeed the fraternities already in existence have a hard struggle to recruit each year a sufficient number of desirable men. Yet there remain among the independents a quite large number of students who are both financially able and desirous of becoming

fraternity members but are not elected. The principal reason why these men are not chosen is that they are unknown. Data at hand indicate that from one-third to nine-tenths of the freshmen taken into the various societies are recruited from candidates recommended by their alumni. Congeniality is a prime requisite, of this the alumnus is usually as competent a judge as may be had. Many men who come to Cornell unrecommended to any fraternity very shortly secure invitations because they show athletic or musical ability. Such accomplishments lift a man above the common level, make him conspicuous, and such powers or skill on the part of its members give the society standing among the undergraduates. An actual canvass of representative fraternities showed that congeniality ("we have to live with him") and athletic or musical ability were predominating factors in the election of candidates. Other qualities considered essential, in order nearly according to the number of times mentioned, were: sterling moral character; personality, including appearance; scholarship; family social standing and financial ability, and individual aggressiveness, about equally desirable; while nationality, religion and "good mixer" received a scattering vote. Of such stuff, therefore, is fraternity material composed. On the whole the standards are quite commendable and if, perhaps, too much emphasis seems to be put upon mere good fellowship and nonscholarly accomplishments that is but a reflection of undergraduate sentiment in general. One quality seems curi-

ously absent from the reported list. That is the ability to entertain in the sense of entertaining others. Perhaps that is lumped with congeniality, the members feeling that when they enjoy the wit or pranks of individual fraters they simply evince the common good fellowship. Nevertheless, in the language of Arnold Bennett the "card" is quite a factor in providing sparkle to fraternity life.

As has been suggested above, the existing fraternities are keen to secure men considered to be desirable fraternity material. In fact so strenuous had this competition become that an Interfraternity Association was formed and adopted an elaborate set of rules to govern the "rushing," entertainment and pledging, of incoming freshmen. Each fraternity was required to furnish the association by September twenty-fifth with a list of the freshman it had pledged previous to September first. Between September first and September twenty-ninth no rushing was permitted and fraternity men in Ithaca were not allowed to communicate with any freshman. "There shall be no meeting of trains." On September twenty-ninth invitations were extended to freshmen by mail on uniform cards accompanied by self-addressed envelopes for their return. The name of one person recommending the freshman might be written on the card but nothing else. Dates were made with freshmen in this manner for the period between October fourth and fourteenth, but no fraternity could have more than two dates with a man during the period. "No date shall interfere with the

freshman's work in the university." "In this first period there shall be absolutely no pledging or communication with freshmen regarding membership, nor during the interim between that and the second period for entertainment." The second period, for which dates were made under similar restrictions, began on October eighteenth and extended through to October twenty-first. During that time freshmen might be pledged, but only within the fraternity house and at times when the freshmen had a date with the fraternity. There were further elaborations in the rules, but what has been given will suffice to indicate how the fraternities had hedged about their activities in order to give a fair opportunity to both the societies and the men in making their choices, also to prevent unseemly and undignified scrambles to secure some especially promising candidate. Still later an effort was made to confine rushing entirely to the second term. But the pressure for men, owing in part to the rapid increase in the number of societies, brought about a complete collapse of the system in 1916, and there was for several years a return to the earlier "catch as catch can" scheme of securing members; though a small group of fraternities, late in the spring of 1920, had agreed to the adoption of a modification of the old rules.

When the first few of the Residential Halls on the campus were nearing completion, a new complication was thought to have been injected into the fraternity situation. It was expected that the authorities would immediately rule that freshmen

should live in the Residential Halls as far as accommodations would permit, and, in any event, be not permitted to live in fraternity houses. This action was anticipated by the fraternities and most of them acquiesced in the desirability of such an arrangement, though they asked a year's notice in which time they might adjust themselves to the new conditions. No doubt such a change would be wholesome. Above all, it would promote class spirit and class loyalty at Cornell, would tend to put these on a par with fraternity loyalty and so develop a broader democracy. It is frequently asserted that the fraternity men of Cornell are snobbish, that the fraternities dominate student activities and indeed attempt to influence the faculty and the trustees with a view to promoting fraternity interests, and that to the detriment of the community as a whole. This is the phase of the fraternity question that seems of greatest importance to many in their concern for the general welfare of Cornell. The best remedy for such conditions, if it be granted they exist, would be, as suggested above, more fraternities; or what amounts to the same thing, more men in fraternities. There is, however, little possibility that additional Residential Halls will be provided rapidly enough to make any plan of housing freshmen exclusively in them feasible in the near future. Considering conditions as they exist, there are without question men who are inclined to be uppish because they enjoy advantages due to organized effort or due to their more fortunate circumstances. But the

majority of fraternities frown on such individuals and urge their men to cultivate nonfraternity acquaintances, if for no other reason, merely as a matter of good policy.

It is very unlikely that any organized effort is exerted to secure special privileges for the fraternities. As opportunity offers single groups may pull a little here or haul there, and the total effect of such diplomacy may at times make itself noticeable, especially in undergraduate affairs. But because of the pressure from within, on account of growing numbers, the societies are themselves favoring curtailment of various perquisites that formerly were theirs. Thus the distribution of class offices, membership on different committees, editorial positions on the annuals, etc., are no longer wholly within the jurisdiction of the fraternity circle. Most such honors and the accompanying emoluments are now awarded according to the outcome of competitions that any student may enter. Perhaps the fraternities do resent criticism from the outside with a little too much choler. For the rest the gravest indictment that may be urged against the fraternities is that they are too much bound up by their own interests, not as opposed to the welfare of the university at large, but in that when their loyalty to the fraternity is exhausted there is too little store left for the greater institution.

How this last works out is well illustrated by the method commonly adopted, especially by the younger fraternities, in financing the purchase of a

fraternity home and by the after results of such procedure. As much money as local capitalists will advance is secured by a first mortgage on the property. The balance of the purchase price is then made up by subscription by the active members and by the sale of bonds secured by a second mortgage. These bonds are taken up in later years with profits acquired in the management of the house. Eventually the whole debt may be cleared up in this manner. But ordinarily the active chapter depends in some measure on its alumni for financial support, either in the nature of voluntary contributions or by a system of pledges. Inquiries addressed to a number of representative organizations brought replies indicating that in most cases the alumni give "liberally," "generously" or "slightly" toward the payment of old obligations, upkeep or improvements.

Accordingly, when a Cornell alumnus acquires a sufficient start to enable him to contribute to the support of his Alma Mater, he commonly feels it his first duty to help his fraternity chapter. Probably every one in touch with Cornell interests, from the noblest faculty member of them all down to the humblest freshman, would sympathize with and encourage a group of Cornell undergraduates who had banded themselves together fraternally and were endeavoring to secure a home for the organization they had founded and hoped to perpetuate. For, in reality, this amounts simply to the effort of groups of individuals to secure dormitory accommodations. Its detrimental as-

pect is that the financial strain is apt to be a bit heavy for the young promoters and so leave them little able or willing to add to the general resources of the university; and, in the case of the older societies, that they will be ambitious to secure too luxurious homes, and thus continue indefinitely to drain the financial cup proffered by alumni. If, then, these sentences by chance come to the eye of some person of wealth he may perceive that here is an opportunity to do much toward promoting democracy at Cornell by contributing to the erection of attractive university living-quarters. If the freshmen were all housed in such halls, all manner of men rubbing elbows in a great dining-room, with no prospect of a fraternity election nearer than the sophomore year, a sense of solidarity and community interest, as affecting the whole university, would develop and prevail, and the impress of this would much subdue later fraternity partisanship. It should be added, however, that in the national crisis in 1917, the fraternity men, as a group, were among the first to respond to the call to arms, and in the university's campaign, in 1920, for endowment funds the fraternity men came forward splendidly.

In conclusion, some tentative suggestions in regard to the choice of a fraternity may not be considered amiss by freshman or parents. The former will do well to look up the statistics of such fraternities as may rush him in the latest issue of the Cornellian, the annual statistical publication of the classes, copies of which will be found in the

university library. Let him note in what other institutions the fraternity has chapters. This will often give an indication as to the general standing of the society. Many of the national organizations publish journals; these are in quite a few instances also on file at the library. A conning of their pages will give an insight into the ideals and aims of the societies. But let him not hesitate to cast his lot with one of the younger, perhaps local organizations, if he feels, after scanning individual records of its seniors as printed in the Cornellian, that the evident characteristics and achievements of these men come nearest to the ideal of development that he himself hopes to attain. He may further be able to find, in back numbers of the Cornellian and Class Book, or on inquiry at the offices of the Alumni Secretary in Morrill Hall, names of alumni who are now members of his home community. These names he will do well to write his parents. The parents can do a little investigating on their own part by writing to the secretary of the university and inquiring about the scholarship standing of the fraternities their sons are invited to join. President Schurman ordered annually the compilation of an honor list and a comparative record of fraternity scholarship. This information is available through the secretary to parents. They may be confident that the candidate himself will be fully posted in regard to the athletic and undergraduate activity record of the organization.

This section is so much like a letter home—rambling—that there will be no harm in putting

here at the very end what ought, probably, to have been the kernel of the composition, something about the actual life in the fraternity house. Shortly after he is pledged, the freshman is initiated with due ceremony and instructed as to the hailing signs and the significance of various fraternity insignia. In accordance with the ruling of the university authorities, initiations must take place within the chapter house and must not include any dangerous features. As most societies include faculty members on their rolls, these provisions are no doubt adhered to very strictly. While it is, of course, impossible to describe the different rituals, it may safely be said that if the vows taken were lived up to, fraternity men would very generally be model characters.

For various reasons freshmen commonly do not live in the chapter house, but all the members dine there. This is one of the most pleasant features of fraternity life. Moreover, the fraternity is in position to supervise very strictly the food served, no mean advantage. Often guests are present, frequently faculty members; men from other colleges on visiting athletic teams are entertained; thus opportunity is afforded to meet many interesting people. After dinner the men commonly gather in the library or general lounging room for a social hour, singing songs, practising dances, playing cards. Practically every society has also a substantial fiction library and subscribes to numerous popular magazines. During Junior Week and Senior Week house parties are

the rule. Then all appointments must be furbished up for the critical inspection of feminine guests. Then, also, the freshmen's lives are full of duties; they must, for example, keep fire watch through the night, and, when they do find time to sleep, hie themselves to some attic or basement corner. It is at these times, when guests from home are entertained, that the nonfraternity man feels most out of it. He has no proper place to take his friends. This is another difficulty of the independent student that the further development of the Residential Halls plans should be made to solve.

A Fraternity Lodge

A Typical Dining-Room in a Fraternity Lodge

NORTHWEST CORNER OF THE QUADRANGLE AT NIGHT

N. Y. S. DRILL HALL AT CORNELL UNIVERSITY

Night, Winter, 1917. Then occupied by cadets of the School of Military Aeronautics, U. S. A. Cornell Aces, Meissner and Donaldson were trained here

CHAPTER VII

ATHLETICS AT CORNELL

IN athletics Cornell was, in the years just preceding the Great War, literally triumphant. "We do not need more athletes at Cornell, but more men need Cornell." Such was, in effect, the pithy summing up of the situation by an alumnus. This claim of "all victorious" is borne out by the records of intercollegiate athletic history as will be perceived on a perusal of the paragraphs that follow; that the metropolitan press did and does not make much of Cornell's athletic achievements is regrettable from the undergraduate viewpoint, but is easily understood. The older universities of the east have a vast alumni support; Cornell is only beginning to come into her own in this respect, and, since readers make a paper, the lack of emphasis on Cornell victories is an immediate consequence. Cornell, however, does not need athletic advertising. On the other hand those who need Cornell, and come to Cornell, will find clean sport and high ideals, good spirit, win or lose, and that is what counts most in the world of amateur athletics.

Of the truth of this dictum, what is perhaps the finest tribute ever paid to Cornell athletics, may be offered in proof. It is an editorial that appeared in the Boston Transcript, May 30, 1911, under the heading, "Victorious by Land and Sea" as follows:

> How does Cornell do it? Two boat races, two baseball games and an intercollegiate track meet for one

day's athletic spoils. Now are the shrines of victory on the Ithacan strand heaped with the bays of her heroes, and the name of their alma mater a word of praise on the tongues of men. On Cayuga's waters the Cornell boat left the Harvard boat two and one-half lengths behind; the Cornell freshmen had passed the buoys at the finish when the Harvard freshmen had nineteen more strokes to row; the Cornell baseball team in a wrenching fourteen-inning game won from the Yale men with a score of six to five, though those stubborn sons of Eli had tied the game with three runs at the end of the ninth inning. At Hanover the Dartmouth freshmen were being worsted at baseball by the Cornell freshmen, four to one; thus early does the habit of victory set in with Ithacans, and these lads went home bearing another sheaf of glory for the general blaze. Close at hand in the Harvard Stadium we saw Cornell's track team, by the more laborious and less spectacular kind of victories, surpass the athletes of every other college of prominence in the East. And three new records were made by Cornell men, two of them by Mr. John Paul Jones, who, if there were anything in names, should have captained his university boat; but he served his college well on land.

So Cornell, as they say in the Greek histories, was victorious both by land and by sea. We feebly struggle; they in glory shine. And though beaten, and beaten badly, we can still admire without envy and cheer without regret. As was said in these columns on Saturday, next to the honor of beating Cornell is the honor of being beaten by men who play the game so like gentlemen, men who can generously win and as handsomely take a defeat. Singularly, there is no sting in being beaten by Cornell; it is as if they had all along deserved to win.

Whether they come bearing the lyre to sing in joint concerts of the musical clubs or in running togs to march fleetly down the cinder paths, they come as

friends, and as such they depart. Some spirit is in that New York State college which compels the respect and admiration of us all. Rarely do groups of young men "show up" better than groups coming from Cornell. Why these things are so we may not pretend to know, and if any one possesses the explanation it will be received with pleasure; but it is both curious and inspiring to note what a high standard of youthful manhood Cornell maintains and how her men respond to any test from athletics to the summons for personal bravery.

The late James McNeil Whistler, with his eccentric generosity, was at a dinner party at which his brother artist, Lord Leighton, was being eulogized for his versatility. The speaker had discoursed warmly of the orator, the scholar and the man, when Whistler broke in: "Paints some, too." And so Cornell is, after all, none of your athlete's college. It trains men, too.

In the words of your own hymn: "Hail, all hail, Cornell!"

After such encomiums from the home of the opponents, Cornell undergraduates could endure with equanimity the attempt of the New York Evening Mail, in November of the same year, to excite itself into a flurry by the use of immoderate language in railing at "Cornell spirit":

CURSE OF OUR COLLEGES

American colleges are still under discussion, but very few critics get at the real evil that afflicts them. It is an evil more desperate than drink. The American universities and colleges, so far as the undergraduate bodies are concerned, are cursed with puerility from top to bottom—but especially at the top. Many manly young fellows enter the colleges; but they are no sooner in than they have this curse of standardized

puerility hung about their necks, and by the time they reach the upper classes they are the silliest sheep that ever chewed the cud of meek convention.

We can illustrate what we mean by making an extract from an editorial in the Cornell Daily Sun, the students' organ at Cornell University. The editorial is addressed to the class of 1915, the freshmen; and to them it gives this warning, which though badly punctuated, is very solemn:

"If you could remember a few of the cardinal virtues how much better it would be for every one. That that small gray cap is always to be worn, save in the specified excepted cases. That smoking on the campus is not for you. That the dearly prized preparatory school insignia show to better advantage ripped off, and the high school pin, even though hid beneath your coat, does surely break the spirit of the rules. That on the Ithaca street railway, if the car be crowded, with upperclassmen aboard, your position is standing. And right here it might well be noted that this rule will never be effective unless upperclassmen coöperate for its enforcement."

This, we are given to understand in another part of the article, represents "the Cornell spirit." Cornell spirit! The Cornell tin-rattle, or the Cornell lolipop, would be a better word. If this is the Cornell spirit, Cornell is still mewling in its nurse's arms. If a student is a man, what difference does it make to him whether the student in the class below him wears on his head a "small gray cap" or a copper-bottomed wash boiler? And what part of a gentleman's education is it to be taught to throw another man out of a seat in a street car, in order that one may sit in it one's self?

The one thing that is most horribly scarce in American universities and colleges is manly dynamic spirit. The disaster of our college education, thus far, is tendency to extinguish individual initiative. The

students become progressively sheep-like all through the course. In forcing the lowerclassmen to put on childish things, the upperclassmen put and keep them on themselves. Instead of thanking God for an independent fellow, for a good brave rebel, when he comes to the college, they set themselves at work to lick him into a docile and conventional attitude. The result is that, by the time he is a senior, he generally chews the cud of crass, idealess conformity with all the rest of the hollow-horned genus.

It would be a blessing for the majority of American colleges if they could be turned topsy-turvy, with the freshmen on top, and stimulated into that desirable diversity that is so healthy for all human beings and so natural to the American race.

However opinion may be divided in regard to the wording of the Sun editorial, or indeed, with reference to the whole system of freshman regulations (which after all are not enforced in the letter) it is evident from the Boston Transcript's version that the training men get at Cornell does not produce entirely shameful results. It is also quite clear that the writer in the Evening Mail rolled out the expressions, "Cornell lolipop" and "Cornell tin-rattle" with quite a bit of unction. There you have the chief reason for reproducing the screed; it illustrates an attitude toward Cornell (this singling her out to bear the burden of what, at worst, is a common fault of the colleges), that not many years ago was shared by all the metropolitan press, and still appears occasionally. Of the same order is the following anecdote, which was printed in the Saturday Evening Post, March 30, 1912, under the caption "Cornell's Comeback":

In 1897 President Benjamin Ide Wheeler, now of the University of California, was faculty representative of the Cornell navy. Cornell and Yale had had no rowing relations for twenty years, and through the efforts of Professor Wheeler a race was arranged.

When the crews of Harvard, Yale and Cornell met at Poughkeepsie in July of that year there was much rowing excitement, and a great crowd was present.

Wheeler was aboard the Cornell launch at the starting-line. Harvard and Cornell were ready, but Yale had not appeared. The Yale launch shot out and a man in it shouted: "Yale cannot be here for twenty minutes. Will you wait, Cornell?"

"We have waited twenty years to beat Yale," Wheeler replied, "and I guess we can wait twenty minutes longer," which in those days and at every Cornell banquet since has unanimously been considered a glittering example of the ready comeback, the quick-as-a-flash stuff, to say nothing of repartee. It is always produced just after the close-harmony boys at Table G have yanked the excelsior out of the Stein Song.

It was in rowing that Cornell first earned athletic fame, and in view of her for long unbroken string of victories in this sport it is not surprising that there should be a little jealousy, coupled with attempts, somehow, to make her ridiculous. These jabs began at a very early date. President White relates in his "Autobiography" that the Cornell crews in their first contest with the other universities on the Connecticut River, at Springfield, were beaten, but took their defeat manfully. When, however, several years later (1875) the Cornell crews met, at Saratoga Lake, the crews from Harvard, Yale and other leading universities, and won both

the freshman and the university races, it was, as he says, humorously charged against President White, that when the news reached Ithaca he rushed out to ring the university bells. "This was not the fact. The simple truth was that, being in the midst of a body of students when the news came, and seeing them rush toward the bell-tower, I went with them to prevent injury to the bells by careless ringing; the ringing was done by them. I will not deny that the victory pleased me."

If this early victory was a bitter pill for the adherents of the rival crews, the Cornell record since must be an unending source of chagrin to such partisans. Of sixty-eight American collegiate varsity races, with from two to eleven contenders in each event, Cornell crews have won forty-seven, or two-thirds of all the contests held up to and including 1920. The freshmen crews have an even better record, having won thirty-seven of a total of forty-eight races in which they have rowed. In addition Cornell freshmen hold the American record for an eight-oared shell in a two-mile race, and the 1901 Cornell varsity holds the world's record for a four-mile race.

These notable achievements were, in greatest measure, due the coaching ability of Charles E. Courtney, Cornell's "Old Man," originator of the "Courtney stroke." Courtney was born in Union Springs, on Lake Cayuga, New York, on November 13, 1849, and began to row races when he was nineteen years old in a boat that he had himself built. The first contest in which he took part was

staged at Aurora, on his home lake and near his home town. Courtney arrived first at the starting place, and, when the other two contenders appeared, it was at once noted that their boats were only about one-third as heavy as Courtney's home-made craft, which weighed eighty pounds. No one expected the country boy to make much of a showing, but, when the three-mile race was done, Courtney was the winner by a half-mile lead! As an amateur he rowed eighty-nine single scull races and won them all! In one hundred and thirty-four contests in which he participated he lost seven.

Courtney first came to Cornell as a coach in 1883, and with the exception of one year, 1884, continued in that capacity until his death on July 17, 1920. On account of an injury received on the train enroute for Poughkeepsie in 1915, and because of his advancing years, he had not participated so actively as formerly in the daily work of training for several seasons. But he still continued, however, to act as mentor, and in 1919 and 1920 was again choosing and personally developing the crews. Between 1885 and 1914, the years of his most active career at Cornell as rowing coach, Cornell crews in intercollegiate contests with Yale, Princeton, Harvard, Pennsylvania, Brown, Bowdoin, Columbia, on various courses, had one unbroken string of victories, and in the Intercollegiate Rowing Association Regattas at Poughkeepsie, first established in 1895, Cornell has won fourteen in a total of twenty-three races, with at times six contestants.

Courtney much preferred to have a candidate for the crew come to him absolutely without rowing experience, than to have a man who had had preparatory school or rowing club amateur training. Those who had never been in a shell before did not have to unlearn faults, and Courtney was quite able to pick out the men qualified for conversion into varsity material, and to develop them into oarsmen of Cornell calibre. In consequence there has never been, in the history of Cornell rowing, any hint of professionalism, and it may be that this ideal, set up so early by the rowing annals, has done much to keep Cornell athletics in all other branches singularly free from that taint.

The "Old Man" was an iron disciplinarian. While in training, crew candidates lived model lives. No favoritism was shown, no matter how humble a candidate was, however slight his connections with the circles that set the social pace of the university, he had just as good a chance to make the boat, to be stroke indeed, as his ability earned for him, no more, no less; and the social favorites had the same opportunity only. Any suspicion, even, of infraction of the rules that Courtney laid down, or murmuring against his orders was sufficient cause for dismissal of a candidate, no matter how promising. An example may be cited from the year 1913, when, owing to conditions connected with the dredging of the Inlet, the "Old Man" found it inadvisable to have more than twenty candidates at the regular quarters. The rest he sent to another boat-house, up-

stream. Some of the men, disgruntled because they were not among the number assigned to the regular boat-house, gave expression to their feelings, and when Courtney heard of this he promptly dropped all the one hundred and twenty-five candidates involved, the innocent with the guilty. Despite this drastic action the Cornell varsity crew that year won its race with Harvard and finished second at Poughkeepsie. In the latter regatta the four-oared crew and the freshman eight also won their races. Another instance of Courtney's discipline is afforded by the famous "short-cake" crew of 1897, which, up to within a few weeks before the races, was the first varsity eight, but the "Old Man" removed them immediately he found that they had broken training table rules by eating short-cake. Nevertheless the varsity finished first that year at Poughkeepsie.

When at "The Oaks," the Cornell training quarters on the Hudson, all sorts of non-strenuous games were indulged in to while away the time between rowing practices. But the men were not allowed to play cards for money. On this account the squad one year sent down to Poughkeepsie for a bushel of hickory nuts to serve as counters for a poker game, and a lively tournament began. "By dint of much persuasion," so Courtney told the story, "they finally got me into the game, and at the end of the tournament I had the bushel of nuts. Every night after supper I would bring out the basket and crack and eat a few nuts, much to the discomfiture of the onlookers." A further side

light on the characteristics of the famous old coach is afforded by his remark: "For the second time in my life I sat in the observation train at Poughkeepsie during the 1912 intercollegiate regatta. It was also the last time."

"There are no secrets between the oarsmen and myself so far as the way they are rowing is concerned, and I maintain this attitude right up to the day of the races. They can figure up their chances as well as I." But Courtney seldom talked for publication, and on the occasion of student celebrations of Cornell victories it was generally impossible to secure even the attendance of the "Old Man," much less get him to make a speech. That his death should occur while he was on a vacation near his boyhood home for the first time in several years, and immediately following a morning fishing excursion on Cayuga, near where he had won his first laurels as an oarsman, was a sentimentally-fitting termination of a notable career; that in his last year as coach he should have turned out a phenomenally successful freshman crew indicates that he was the master of his profession until the end. In this first year crew he also left a heritage which will serve to carry the Courtney rowing tradition into future years. That his methods will be preserved at Cornell goes almost without saying; and it was at first hoped that, with John Hoyle, his able coadjutor through many years, available to carry forward his work without a significant break, a continuation of victories would be the share of Cornell crews.

John F., "Jack," Moakley coaches the "track" teams. This is a superfluous statement, no doubt, to most readers of these lines, but there will be some who should be properly introduced. Moakley came to Cornell in 1899, and since then the track teams have showed a steady rise in quality, manifest particularly in their all-round excellence in the varied events that constitute this sport, and by their great preëminence in distance running and cross-country. When the Intercollegiate Track Cup was first put up for competition, in 1904, Cornell teams had never won an intercollegiate meet. That year the team tied with Princeton for fourth place. But in the following year the team won first place, repeated the performance in 1906, and then, after an interim of a year, again in 1908, next in 1911 and finally in 1914, thus securing the fifth leg on the cup and winning this trophy permanently for Cornell. But it must not be presumed that this final triumph for Cornell was a foregone conclusion. Pennsylvania had in the intervening years also secured four legs on the trophy, and that team also showed in 1914 the greatest promise of adding another victory to its string. On the other hand, Moakley was confronted with the task of developing a championship team out of a squad that contained only two of the former season's point winners. In the face of such a discouraging outlook the coach and the captain set to work determinedly, developed every latent talent in the candidates who offered themselves

for training, enthused, inspired and stimulated the men, so that when the critical contest took place, although eleven of the twelve men who scored for Cornell had never won a point in the Intercollegiates before, the team nevertheless won; defeating Pennsylvania, which got second place, by twelve points. Moreover, this was done by scoring in eleven out of a total of thirteen events, indubitable evidence of the work of a well-balanced team, not that of a few individual stars. This is only another way of saying that as in crew, so also in track, Cornell develops her own representatives, does not depend on recruiting precocious schoolboy talent. In view of the fact, that as reported by Moakley himself, "Nearly every other college Saturday (1914) wanted to see Cornell win," it seems almost shameful to set down that the Cornell team already has four legs on the new cup, acquired by winning first place in 1915, 1916, 1917 and 1919.

As has been said, Cornell track teams are especially distinguished by their distance runners. The continued excellence in such events is commonly explained as a response to the effect of the hilly topography of the Cornell region in developing great endurance in the track representatives of the institution. Such a conclusion is hardly borne out by the facts, one that other college teams train on much more hilly courses than Cornell's do; the second, that it seems evident that while sprinters must be born so, distance runners can be made. In the Intercollegiate Cross-Country Runs, Cornell has, if anything, been an even more consistent

winner than in the track meets, with seventeen team victories to her credit in the twenty-four runs that have been held up to 1924.

Moakley's prime task, in addition to training and developing his men, seems to be to inspire them with confidence in their ability. Before the meet in which the first Intercollegiate Cup was finally won, he is reported to have summoned Caldwell and Hoffmire to his room and addressed them as follows:

"Caldwell, you have that awful habit of staying behind your man and allowing him to make the pace, so that about the time you are ready to make your bid the race is over. I don't want this to happen this afternoon. Go out yourself and race the boys off their feet. Keep in advance of Meredith by all means, because he's liable to spring a sprint near the finish. Of Brown I don't expect much, but look out for Meredith. Stay in front and finish in front. You know what'll happen if you lose.

"And see here Hoffmire, the time has arrived when you can show what a great little runner you are. Penn has McCurdy fit and ready to rob us of five points. I know we'll win if you win the two-mile race. It's all up to you. You really don't appreciate what a great little man you are today. But imagine what you'll be in the eyes of the athletic public if you allow McCurdy to beat you. That must not happen. You heard what I told Caldwell. That goes double for you. We're out to win cleanly, but you must do your share."

That his advice bore good fruit is proved by the fact that both men won their races in the face of determined competition. And that the Cornell track victories are in no slight degree due to Moakley's training is indicated by the fact that the metropolitan sporting writers acclaim him the "greatest track coach the world has ever known." It was a deserved recognition when this Cornell sport-mentor was made head-coach of the American team at the Olympic Games in Antwerp, 1920.

Up to the time of Dr. Sharpe's coming to Cornell, in 1912, the Cornell football record had been one of ups and downs, mostly downs. Pennsylvania, the traditional rival and opponent in the big game of the year, on Thanksgiving Day, had not been humbled by defeat since 1901, the intervening years had seen only a tie game in 1906, the single break in a succession of discomfitures, including several disastrous routs. Such a thing as a championship team was dreamed of, but not hoped for, by several generations of Cornell undergraduates. Nor was the Penn hoodoo broken in the first year under Sharpe, once more the score read in the opponent's favor, 7 to 2; during the whole season the team won only three minor games in the ten played. But there were signs of improvement, the Penn score did not reach the figures it had attained too often in former years. Then in 1913 came the first real fruits of the new régime, the team won more games than it lost, and on Thanksgiving Day it triumphed over Penn by a score of 21 to 0.

That this victory was not a fluke became apparent in the following season, 1914, when the team lost only two of the games played and again defeated Pennsylvania, this time by a score of 24 to 12. Michigan also fell before its attack, score 28 to 13. Now the undergraduates began, really, to perk up, the song of the "Big Red Team":

Cheer till the sound wakes the blue hills around,
Makes the scream of the north wind yield
To the strength of the yell, from the men of Cornell
When the Big Red Team takes the field,
Yea! yea!
Three thousand strong we march, march along
From our home of the gray rock height
Oh! the vict'ry is sealed when the team takes the field
And we cheer for the Red and White.

that had seemingly been ill-omened from the time of its introduction, was revived and apparently did not dampen the ardor of the gridiron warriors in the least. But the real triumph came in 1915, the season that furnished forth an undefeated Cornell football team, champions of all, including victories over Harvard, Michigan and Pennsylvania, premier honors for Cornell in the intercollegiate football world.

In the spring of 1919, after the gap of the war years, Dr. Sharpe was called to the position of Director of Athletics at his Alma Mater, Yale. Accordingly it has been necessary to begin over again in the building up of the football structure,

The Late Charles E. Courtney and Two Former Cornell Coxswains

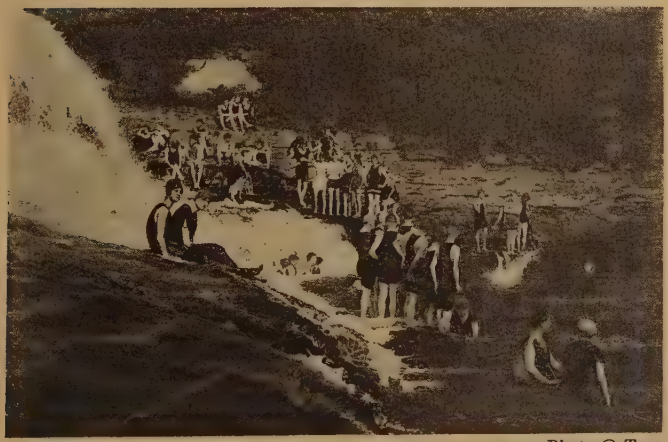


Photo © Troy

The Swimming Pool in Fall Creek

FINISH, CORNELL–PENNSYLVANIA CROSS-COUNTRY MEET
November 8, 1913

both coaching staff and players. John H., "Speedy," Rush, who had successfully coached Princeton teams for three years, was placed in charge, but he had only four veterans of earlier teams in his initial squad. It was, perhaps, not to be expected that under the circumstances a winning team could be developed in the first year. In any event the season of 1919, in view of the pre-war triumphs was a most unhappy one and ended in a 24 to 0 defeat for Cornell by Pennsylvania.

Cornell's long undisputed, premier position in rowing and track athletics makes it evident that the methods pursued in developing teams for these sports are the right ones, at least for use with the material that constitutes the body of Cornell men. While a prep school star may be recruited from time to time and later make good under the red and white banner, it is clear that the greater number of such individuals will continue to enroll in those collegiate institutions for which the particular preparatory schools that develop their football talents are academically, as well as in the athletic field, feeders and adjuncts. A certain element among Cornell undergraduates always deplores this, and hopes that it is a situation that may be remedied by the establishing of a Cornell football tradition on a par with that of these other institutions. While it would not be fair to insist that Cornell will be advantaged, if these youths with a reputation, never, in any great number, enter the institution, for some of the few that have come have won distinction in her halls

both as athletes and scholars; still it should be recognized that in football Cornell will attain, permanently, a front rank place only when the same kind of slow but consistent and persistent effort is devoted to developing football material as has been, through a long past, given by coaches and candidates both to the making of crews and track teams. In other words, when undergraduates and management both become reconciled to the fact that Cornell can place no dependence on a supply of ready made material in football, but must work to develop it themselves at Cornell, then the records will show from year to year an undiminished lustre.

Such a program has, indeed, been entered upon with a large measure of success. The long term engagement of Gilmour Dobie to be football coach at Cornell and to look after football exclusively and be in residence the year round in itself indicates that the Athletic Council is appreciative of the fundamental difficulty, and has taken the proper steps to meet it. It had been, up to the time when this arrangement was made, unprecedented among eastern institutions at least, to have a coach engaged to devote all his time to football and to remain on the job throughout the year. But it has been by such concentration and application to the task that Courtney and Moakley achieved their successes and it seems reasonable to antici-

pate that the same results can be attained in other branches.

Certainly, also, the record of the new coach inspires confidence. A college graduate and himself a player on a championship Minnesota team, he has, since 1906, successively coached at three different institutions and at all of these has been uniformly successful. Indeed, his teams have the extraordinary record of never losing a game. He came to Cornell from Annapolis. The future should be predicted, not on Dobie's brilliant performance, but on the degree in which Cornell followers of football are willing to work for four years toward the creation of a squad of players from all classes, trained from the ground up, made fit to become football stars of the first magnitude in their senior years and leaving behind them when they are graduated a galaxy of all-Cornell material to fill their places in succeeding seasons.

In basket-ball Dr. Sharpe was able to turn out a championship team in the first year of his incumbency as Cornell coach. In following years the standing of the team in the league was not so high, in 1916-17 it finished last. But it got back to second place in 1923, and in 1924 finished first under the able coaching of Howard Ortner, C. U. '19.

A championship title is never definitely awarded in college baseball, but in 1914 it was conceded that the Red and White team had earned first place. In

1915, fourteen of the twenty-six games played were won; in 1916, thirteen of twenty-two, and these included the winning of the three important series, those with Princeton, Pennsylvania and Michigan. In 1924 the team made a better record than it had for a number of years past, winning about two-thirds of the games played.

Another sport with a paid coach at Cornell is wrestling, and its leader is Walter C. O'Connell, a Cornell man of the 1911 class. The wrestling teams, therefore, are all-Cornell products, and their record easily equals, if not surpasses, those earned by the Cornell teams of other sports that are more in the public eye. The wrestling team has won the intercollegiate championship six times in the eight years, including that of the 1917 season, that the league had then been in existence. In 1924 Cornell got second place.

"Where were the other colleges while all those pre-war championships were being gathered in by Cornell?"—the non-Cornellian reader may well ask. To answer and to end this review it may best serve to quote once more from the New York Evening Mail, which evidently has had a change in heart since 1911, for in 1914, Grantland Rice, writing for its columns on Cornell athletics for that year, said:

> If Cornell ever started winning football championships her case would quickly come under the grip of the Sherman anti-trust law. For, in other respects—on track, field and water—her mastery is about complete. Not even Harvard, with her Brickley and

Mahan in football, stands as high in all-around athletic achievement as the Ithacan stronghold.

Cornell undoubtedly is better in more athletic ways and devices than any other American university. She carries a greater variety of athletic skill, and it's just as well that her football machines are not quite up to her track teams and her crews. Otherwise there would be little intercollegiate competition.

Cornell may come in for a bit of spoofing through the fall, but all spoofing ceases when her runners reach the track and her crews reach for their oars. The spoofing is then shifted to the other side of the hedge.

In 1915 Cornell won the football championship, and in 1922, '23 and '24 had undefeated teams!

Athletics are not conducted at Cornell to the detriment of the students' academic training. The various coaches vie with the faculty in insisting that the scholarship rating of the men in the various squads be kept well above the passing mark. The faculty has ruled that a man with conditions in his studies may not take part in an intercollegiate contest. The underfit scholar is a poor candidate for a place on a varsity team, a source of worriment to the several coaches, and the object of much exhortation, on part of the undergraduates themselves, that he keep up in his studies. And if skill in solving problems, no matter what their nature, is admitted to constitute a part of a rational educational system, then the mental discipline of learning the rules and science of the various games must be considered as counting for something in the intellectual development of the athletic undergraduate.

To the uninitiated it may appear that, although the benefit of college athletics outweighs any handicap they may impose on the men participating, only a few receive the training involved; that the rest of the undergraduates, in vast majority, on the other hand, idle away their time as mere spectators and rooters for the several teams. Nothing could be further from the truth as far as Cornell is concerned. To begin with, in order that so many aggregations of intercollegiate championship calibre may be assembled, it is necessary that a vast amount of material be available from which the few best men are chosen eventually to represent the university in a varsity team. A compilation made in a pre-war year when four thousand six hundred students were regularly enrolled in the university showed that fully one thousand men were engaged in competition for places on the varsity and freshman teams.

In the varsity group the track team brought out two hundred and twenty-five men; rowing, seven hundred; baseball, sixty; football, sixty-five; cross-country, five hundred; basket-ball, fifty-five; soccer, thirty; hockey, forty-seven; swimming, twelve; wrestling, ninety-five; fencing, thirty-five; lacrosse, thirty; tennis, twenty, and golf, thirty. The figures on freshman athletics are: track team, one hundred and twenty-five; crew, one hundred and twenty-five; baseball, five hundred; football, ninety-five; cross-country, thirty. That these conditions have not changed in the return to normal after the war is evidenced by the fact that

even more men came out for the several varsity sports in 1919; thus eighty-five for football, seventy-five for baseball and one hundred and twenty for wrestling, figures which happen to be at hand.

In addition to the one thousand and more men engaged in varsity and freshman athletics the system of intercollege games established at Cornell a number of years ago, and which has gained popularity, brought another thousand men actively into athletics not of the varsity type. The intercollege system provides an opportunity for athletic rivalry between the various colleges that make up the university. Drill at Cornell is compulsory for freshmen and sophomore students and approximately two thousand men are required to pursue military training three hours a week.

In addition to the forms of athletics already mentioned it is assumed that more than two hundred men take part in the interfraternity contests such as baseball, football, bowling and tennis.

It is undoubtedly true that some students take part in more than one branch of athletics during the year; in the tabulations above there are, therefore, duplications, but it is fair to assume that the number of undergraduates who during the year get exercise in one way or another reaches the four thousand mark.

From this it will be appreciated that the new student at Cornell finds no difficulty in obtaining physical exercise. If he has the latent ability, and the willingness to work, and can also keep up in

his studies, he can as easily make a varsity team and "win his C." Preparatory school reputations count for little or nothing unless backed up by performance of unusual quality in competition with other candidates, nor do social connections influence the coaches in their choice of men. As each season opens there is an urgent call for candidates for the sport, and the larger the squad that reports the happier are those in charge of it. If the fraternity men predominate in the number of the "C" men it is for two reasons. One, that each fraternity urges every possible eligible man in its group to "come out"; and after he is in training gives him moral support and encouragement during the strenuous competition that ensues. This is perhaps the greatest handicap of the independent; he has no organized group of undergraduate intimates interested in his personal efforts to win a place, consequently he often becomes disheartened and quits in the midst of the struggle, or is unsystematic in his training. If the independent has the will-power to keep persistently at it by himself and develops the necessary ability, he is assured of a position on the team. In fact, it is more than likely that he will be preferred of two candidates, one a fraternity man, the other not, for the latter is under the influence only of the coach, and therefore will, perhaps, respond more promptly to that leader's suggestions. The second reason for the preponderance of fraternity men among the varsity athletes is that athletic success is almost sure to gain a man one or more bids to

join a fraternity. If so, the independent who has won such success will find that it requires as much will-power to resist the fond embraces of the fraternity "rushing teams" as it did to work by himself for athletic laurels.

One of the evils charged against college athletics is the amount of money spent in fostering such sports, and the consequent necessity of securing large gate receipts, particularly from football games, to pay the bill. There would be little excuse for bringing up this question in these pages if it were not for the fact that Cornell's superior position in intercollegiate competition of necessity puts her among the institutions that must have the system highly developed. Figures published before the war showed that Harvard, in 1914, spent $160,000; Yale, $100,000; while Cornell ranked third with expenditures of only $75,000. Again, only four hundred men at Harvard then engaged in intercollegiate athletics, so that each man cost about $400 per annum to keep in competition. As has been suggested, most of this money comes from the receipts of football games, a source from which Harvard derived $84,713 in profits in the 1913 season. At Cornell the revenue from football was not nearly so great, only about $10,000 in the same year. In the several post-war years the enormousness of the gate receipts at the Harvard-Yale games has been the theme of much newspaper comment. Cornell students, despite such evident disparity in amount of admission money got from the public are, nevertheless, not compelled to buy

season tickets to the games as is the practice at some institutions. It is necessary, however, to depend on the voluntary purchase of season tickets to supply a large part of the funds. A more picturesque method of making up part of the deficiency is the undergraduate staging of the "Spring Day" circus.

To revert to the original question: the specific objections to the raising of so much money for athletic purposes are that it tends to commercialize the college sports; and second, that too small a percentage of the students take part in the games, the money being spent in the highly specialized training of a few exceptional performers, while the rest of the undergraduate body is physically neglected. The answer to the first objection is that football, the money-maker, is about the only sport into which professionalism has not intruded, and is not likely to intrude. "The public can have its fill of baseball all summer long. It can see noncollegiate track and field athletics, hockey, swimming, wrestling and rowing. But it can get the thrill of football only in the shadow of our seats of learning and in an atmosphere of mellow scholasticism and rigid amateurism. The roughest of our sports is thus at once the most exclusive and the most alluring," says the New York Tribune. It would remain so even if the box-office receipts were dispensed with. Such being the case it is not unfair that the public should pay for providing proper training and care for the students that furnish the spectacle. This applies to the coaching and medical staff; the high-

priced and elaborate business organization of athletic affairs is necessary because of the way in which the money must be got. With reference to the charge that only a small percentage of students participate in the advantages for athletic training purchased by this money; the answer is that at Cornell, at least, the charge is not founded on fact. In addition to the figures quoted in earlier paragraphs, it may suffice here to set down that an investigation made in 1915 showed that ninety-two and five-tenths per cent of all the undergraduate men at Cornell participated in some directed physical exercise. Half of the four thousand individuals that this percentage includes, are, to be sure, receiving physical training under instruction supplied by university funds, but it is quite notable that the interest in athletic sports accounts for the other half. One other criticism of college athletics is that there are too many intercollegiate contests scheduled for each team. If so, at Cornell the remedy is in the hands of the faculty which has a committee that must ratify all schedules of athletic events, and this body is rather insistent that no individual shall be absent from the university during instruction periods for more than two or three days during a term for the purpose of playing in an outside game. In that respect, at any rate, the evil can not, therefore, be very serious.

It remains to say a word about the gala athletic days of the year. In the fall, from one to three football games, important enough to attract a horde of visitors, are scheduled at Ithaca. Of late

years, with the substantial and ample accommodations provided by the new Schoellkopf Stadium, the setting for these events has been entirely fitting, a thing that was lacking when the games were played on Percy Field, down-town. Now the spectator finds himself or herself in the midst of college halls, no incongruous evidence of the world of business is visible, the whole scene is "in atmosphere." To the right and left are close-packed rows of a gaily-attired football crowd, below is the white-chalked field and its plunging warriors; while in the waits between the periods there is spread before the visitors' eyes a wide panorama of hill and hollow, all decked in the glorious color enchantments of a deciduous forest autumn. The football season provides the kindest weather of the year; on the day of a game one can usually count on a mellow October sun shining down through a golden haze during the contest, and sinking as a great ball of red fire to mark its end. Those who come once to see a Cornell game at Ithaca, have, therefore, immediately an intense yearning to come again. At Thanksgiving time it is the great ambition of each undergraduate to be at Philadelphia for the Pennsylvania game; such a trip may, indeed, be termed the great dissipation of the school year. Cornell undergraduates are not accustomed to prance off to a big city to "see a show" or indulge themselves in the other kindred attractions of a great center of population, the big cities are too far away. Hence the planning

for it, and the great anticipation of the "trip to Philly."

In the vernal season there are usually several baseball games with rivals of such reputation as to attract large crowds, but the crowning day of the year is Navy Day. This has been made a university holiday and is celebrated sometime near the end of May, when the weather becomes settled, warm and fine. In the morning there is the Spring Day circus, in the afternoon a big baseball game and after that the regatta on Cayuga. The last provides the most animated and picturesque of the Cornell athletic spectacles. Long before the scheduled time of the races, a dozen fleets seem suddenly to have been born on the lake, as innumerable craft; row- and motor-boats, canoes, sail-boats and excursion steamers all ply their way to the end of the course. Then the long moving grandstand, the observation train, comes puffing along down the shore, a two-headed beast, having an engine at each end. Near evening, patrol boats clear the course, but still the wind keeps up and the shells fail to appear. The sun, with evident mindfulness of the deficiencies of Nature, does his best to offset the difficulty by painting a tremendous sunset on the western sky. It comes to dusk, the wind-chopped sea persists. Spectators become restless. The more provident bring forth lunches, delectable bits of food, seemingly fit for the gods, at least that is the way these lunches appeal to those who have not been so foresighted. Soon little bonfires show beacon-like flames all along the steep slope of the

lake front, and cast a lurid light on the waters below. Finally, at eight o'clock, the wind abates, slow, oily swells replace the choppy sea, and the crews put in an appearance. They start; the observation train rolls along thunderously, with engine bells clanging, suiting its speed to that of the racing shells. Excursion boats careen dangerously as the hoarse bellowing of the coxswains announces the approach of the flying racers from out of the gloom. They pass, thin black streaks filled with rhythmically-swaying figures, and one catches the steady beat of the oars.

A faint cheer announces that the line has been crossed; but by now it is so dark that only those who are stationed at the very finish can see who is victorious. Yet every Cornellian is sufficiently happy when the red and white is announced the winner.

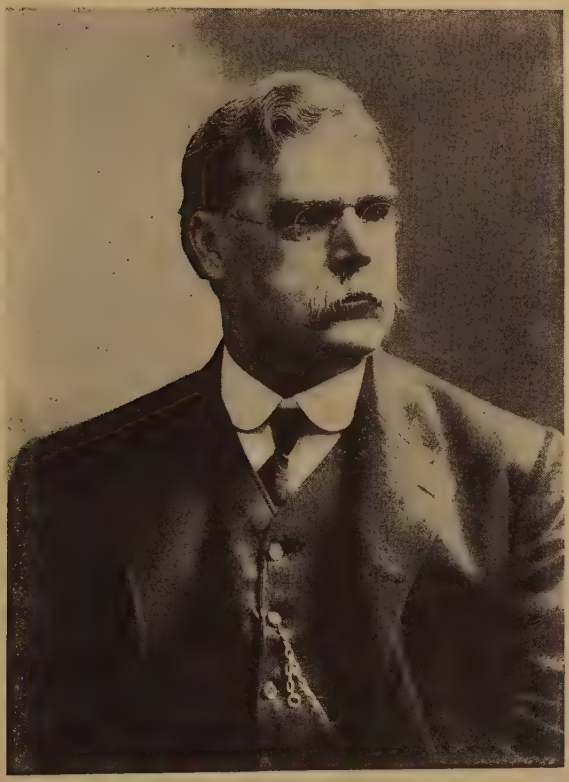
Between the actual contests there are athletic rallies of varied kinds. Their chief purpose, however, is to encourage students to try out for various teams. Usually also, there are "send offs" when the undergraduates march to the railroad stations to bid good luck and a victorious outcome to a team that is to meet an opponent on a foreign field. Similarly the large and living loyalty to Cornell and Cornell athletic representatives finds expression when the students gather again "to meet the team" on its return. Whether they come as conquerors or conquered, it matters not, there is always a crowd to welcome those who fought well for Cornell's fame abroad. While these occasions

are part of the athlete's reward for self-sacrifice and devotion to training, the crowning salvo of applause and public recognition of athletic distinction comes at the "Junior Smoker," when the "Varsity C's" are awarded to those who have won such laurels, with much speech making and general jollification at a great gathering held in the Drill Hall.

CHAPTER VIII

INSTRUCTION

THE present age may be characterized as one of accomplishment in contrast with the longer epoch of appreciation that preceded it. The point of view of the modern world is essentially different from that of several generations ago. In the world of letters this difference is quite apparent in that the writing of the younger authors is marked by an almost entire absence of the quotations and literary allusions so abundant in the works of an earlier school. Intelligent persons nowadays are not versed in the classics, despite a "five foot shelf of books" and similar expedients, hence quotations from these, however apt, afford but little pleasure. Still less patience would be shown for what our forefathers were pleased to term "the feast of reason and the flow of soul." We are credibly informed that at the bicentennial celebration of the founding of Harvard, in 1836, there was speech making, with interruptions only to eat, from ten in the morning until eight at night; and the audiences, made up of the same individuals, were held rapt and attentive for all that time. Today the saying is "No souls are saved after the first twenty minutes." We are ambitious to do and think for ourselves rather than take pleasure in the thoughts and actions of others. Therefore we have "education for efficiency."



The Late Charles E. Courtney

Photo © Troy

CORNELL PRINCETON YALE

Cayuga Regatta, Navy Day, May 27, 1916

And yet we may suspect that education, at least as represented by the acquirement of a college degree, continues to be sought after for the same reason that Ruskin expressed as a desire "to ring with confidence the visitors' bell at double-belled doors." Modernized, this amounts to saying that many students in attendance at our institutions of higher learning are only so ignobly ambitious as to hope that the attainment of a diploma will make them bold to knock at any man's door unafraid. Ruskin makes this idea synonymous with education for "advancement in life," or as we put it, education for efficiency. Yet, a very real distinction may be drawn between Ruskin's education for advancement in life and our education for efficiency. Education for efficiency in its ultimate phase is vocational training. One may quarrel whether this should have a place in institutions of higher learning, but of its practical value to the individual and to the community there can be no doubt. There exists, however, today, at Cornell, and elsewhere, a large group of undergraduates, it would not be right to call them students, that desires neither an education for efficiency nor one that "in itself *is* advancement in life," Ruskin's expression for true scholarship. Such undergraduates require rather a wordy familiarity with culture; an opportunity to test what manner of men the faculties, "professors," are; and after four years of superficial connection with learning, in which they secure a mite of elementary knowledge in many subjects and, perhaps vicar-

iously, a plenitude of athletics; to have the hall mark of the institution put on them in the matter of a degree, for this serves "to identify you." This is the class of persons that Ruskin, no doubt, had in mind when he wrote of seeking education for advancement in life. Between them and the earnest students in the professional schools there exists a wide gulf of difference. It is the student who wishes to put into practice and to enlarge upon what he has learned that Cornell seeks to enroll, and not the man who desires primarily to be identified by her diploma.

When Ezra Cornell in his opening address at the inaugural ceremonies of the university said: "I hope we have laid the foundations of an institution which shall combine practical with liberal education, which shall fit the youth of our country for the professions, the farms, the mines, the manufactories, for the investigations of science, and for mastering all the practical questions of life with success and honor;" he expressed as tersely as maybe the whole spirit and purpose of the institution. The keynote of the statement is "practical with liberal education." In the College of Arts and Sciences Cornell has provided for the ad-

ENTRANCE, RAND HALL, NIGHT

vancement of pure learning; the other colleges are professional schools, the training they offer is for an object directly in view. They do, however, also contribute to the advancement of knowledge, if not along academic lines, then in research both pure and applied. Indeed the faculty of the Agricultural College have felt that their courses so truly combine the practical with the liberal education as to warrant their bestowing the degree of Bachelor of Science without a limiting clause. However, much of the work that the Agricultural College faculty requires of its undergraduates is in the same subjects that the College of Arts and Science includes and, in fact, in courses offered by that faculty. The same relation prevails, though in a lesser degree, in the case of the other professional schools. Each one is dependent on the Arts College in a greater or less measure. Thus regular four-year students in the College of Agriculture are required to take courses in English, Chemistry, Geology, Physics and Political Science in the Arts College. The Civil Engineers take a number of courses in Mathematics, Physics, Chemistry and Economics; Veterinary College students, Chemistry; the Law students, Economics and other elective subjects. The Medical College is a graduate school and requires the Arts degree or its equivalent for entrance. From this enumeration it will be appreciated that the Arts College with its liberal studies is the nucleus around which the professional schools have developed. Again, while the Arts College students are required to give approx-

imately four-fifths of their time during the first three years of their course to subjects in their own college, they may freely elect subjects in other colleges to make up the rest of their schedules of study during those years. Moreover, they may devote the whole of the senior year to study in the professional schools and still be eligible for the Arts degree. Cornell provides liberal with practical education, it is a university where, in accordance with Ezra Cornell's ideal, "any person can find instruction in any study" an ideal he probably never hoped could be so nearly realized in the short time that has elapsed since the founding. Yet the various faculties, without putting unnecessary obstacles athwart Ezra Cornell's idea of any person, any study, have found it possible to insist on certain requirements and to restrict the choice of electives in such manner as will insure a consistent and profitable course of study for each student who is a candidate for a degree.

Much has been written in late years about the value of a college education. In these discussions the emphasis is put altogether too much on comparison of the business successes, judged by relative earning ability, of the trained and untrained man. A favorite device is to gather statistics of this nature by sending a list of queries to representative employers asking: Do you prefer college graduates for positions in your business? Are the college men more capable? In your experience are college men more generally successful? and others of the same tenor. But seldom, or never, is there included

a question regarding the effect of the college man's presence on the general welfare of the community. Why not rather judge the graduates by answers that would be received in reply to such queries as: What has the college man done for political uplift and social betterment in your vicinity? On this basis, it would seem that the education which Ruskin said "in itself *is* advancement in life" is best.

If the narrow criterion of business success, that is now applied so exclusively, could be done away with as a sole basis for judging the worth of a man's life, the college man would push even more rapidly to the front. The graduates of such institutions as the universities of Wisconsin and Cornell, in the degree in which they have taken advantage of the instruction offered, must needs be informed, capable of intelligent judgment, and apt to take a nonpartisan attitude in public affairs. But even when earning ability is made the only standard, college men have quite generally measured up to expectations. In places where mere shrewdness determines advancement it is of course not to be expected that the university graduate will make as good a showing as the man from the so-called school of hard knocks. Perhaps it is true, as has been stated in a criticism of the college of today, that students have too many aids, too much apparatus and assistance in their work, and that because of this are not as resourceful as they should be. But it must not be imagined that at Cornell, at least, the student is in any way pampered. In fact the requirements both for admission and grad-

uation are constantly being made more difficult of fulfillment.

It is no longer possible to enter Cornell University as a candidate for a degree without having requisite preparation. Formerly students were often admitted with one or more "conditions," which they were required to make up within a specified period. This is no longer permitted. Moreover, after he has been registered as an undergraduate the student must be able to complete successfully from term to term all the courses specified by the faculty of the particular professional college he may have entered, or if he enters the Arts College, satisfy quite definite requirements both as to the amount and character of his studies. The conditions in regard to the character of studies are such as will insure that the student will get the broad and liberal training that the degree of the College symbolizes. Free election of all sorts of elementary courses, which formerly resulted in very large classes in those that had the reputation of being easy, is no longer permitted. The student is allowed a choice but he must elect enough work in a subject to insure his getting more than a mere smattering of its content and he must include a wide enough variety of studies to avoid narrow specialization in his first two years. Some work in each the groups English and history, a foreign language, philosophy and mathematics and in one or more of the sciences is prescribed. Members of the faculty advise each student in making a rational choice. In his upperclass years he must elect from certain

groups of studies one in which he will do his principal work and himself choose a professor in that group to guide his choices and consult with him in regard to courses. In all the student must pass one hundred and twenty hours of work and with satisfactory grades; conditioned courses do not count for graduation. If his standing in any one term is unsatisfactory he is not permitted to register for the next term unless the poor standing is due to ill health or other causes not in the control of the student. If he is allowed to continue after such excuses, or if later reinstated, neither any part of the work nor the residence of the unsatisfactory term is counted toward his degree. Substantially similar regulations govern the work in the professional colleges. These rules will indicate the discouragements from loafing or unsystematic study at Cornell.

Instruction is given in lectures, by laboratory practice and in recitation classes. Advanced students in any subject also take part in seminary discussions and do research work. Perhaps the major part of the instruction is in the form of one hour lectures. The professor, more or less formally, discusses the subject point by point while the students take notes. Usually text-book study is assigned to round out the discussion and to furnish the concise definitions necessary. In addition, a variety of reference readings is often required. It is presumed that each hour of classroom instruction will entail at least two hours outside study on the part of the average student. As a

matter of fact few courses are given that much outside time regularly through the term by undergraduates. Special interest in, or difficulty with, a particular subject may, however, result in some individuals giving even more hours to that topic. But the great defect of the lecture system is the fact that it fosters the natural tendency of students to procrastinate. When they close their note-books at the end of a lecture most undergraduates are prone to dismiss the subject from their minds until the next meeting of the class, putting off conning of notes, study of the text and reference reading until just preceding the preliminary and final examinations. In most subjects classes are scheduled to meet either three or five times per week and, although some come together only once or twice in the same period, it may readily be appreciated that neglected work even in such classes rapidly accumulates and becomes increasingly difficult to assimilate.

The apparent remedy for the inadequacy of the lecture system at Cornell is more recitation classes. At lectures the professor is continually pouring out information and, with the exception of preliminary examinations which come only at intervals, there is little opportunity for the student to reproduce what has been learned, and none to discuss the subject with instructors. The university has not, however, enough income to provide for recitation sections in the majority of courses, though they are held in some. Here is the greatest need of Cornell—more money for a general endowment to

provide higher salaries for the existing faculty and to make possible the appointment of an adequate number of instructors to conduct recitation classes with only a few students in each section. Such recitation classes would provide the personal contact of instructor and student that is so desirable and would insure that students keep up with their work throughout the term. But it would not serve to have low-salaried, mediocre men in such positions. They must be competent in their subjects, of forceful personality, able to win and hold the respect of the undergraduates. If Cornell could have leaders in the different fields of learning occupying lecture chairs and could supplement their teaching with personal instruction given by promising younger thinkers and investigators, she would make an immense stride forward. This is not a new idea: in fact it was the actual practice in the early days of the institution when Louis Agassiz, Goldwin Smith, James Russell Lowell and George William Curtis were numbered among the nonresident professors who gave courses of lectures while younger men carried on the routine of instruction in their various departments.

Securing funds for general endowment is probably the most difficult task attaching to university administration because the donor of such moneys can realize nothing tangible from his gift. When a building is given it usually also carries the name of the benefactor or some person whom he wishes honored by a memorial. Indeed gifts of this nature, while providing for the material ex-

pansion of the university, handicap its intellectual growth. The new structures provide accommodations for the growing number of students but they also add to the heavy burden of maintenance and, by necessitating a larger number of instructors, tend to bring about a general reduction of salaries, with the result that the best professors are attracted away from Cornell by the substantially larger pay offered by other institutions.

Nevertheless a start has been made in the matter of providing for this need. The Semi-Centennial Endowment Campaign had succeeded by the middle of 1920 in securing subscriptions for five millions of dollars for the general endowment fund and at Commencement in the same year the gift by August Hecksher of five hundred thousand dollars for the promotion of research in science was announced. It is sincerely to be hoped that the opportunity to help Cornell will have a strong appeal to men of wealth who care more for doing practical good with their money than for having their names, or those of a relative or of some admirable personage, appear over the portals of a university structure. The Medical College of Cornell was for years supported by one man without publicity for himself. If publicity is desired a much greater dignity attaches to the endowment of a professorship than to naming a monument of stone or brick.

Furthermore the success of Cornell in combining liberal with practical education can not fail to appeal to benefactors who, while recognizing the

value of pure scholarship, nevertheless realize that this is a work-a-day world and that the majority of students are not fitted to become intellectual leaders or research workers.

The splendid laboratory facilities of Cornell are one of her greatest assets. Laboratory practice has always been a very essential feature in the scheme of instruction, especially in the scientific and technical departments. By common consent lecture and recitation classes are nearly all scheduled in morning hours leaving the afternoons free for laboratory periods. The work and experiments assigned in the laboratories are of such nature as to familiarize the student with the material of the

UPPER CASCADILLA GORGE, WINTER

subject, its apparatus and methods, teach him to observe and make deductions as to the significance of phenomena and to collect data for the writing of a report on what was done and the results

obtained. The purpose of excursions afield in the natural history subjects is similar to that of the laboratory practice in that it consists of observation and the collection of data and materials, and in that the field notes are made the basis for an extended report written subsequently. In both cases the time spent in class is usually two and one-half hours, while from one to three or more hours at home are required for writing the report. In some cases, however, the equivalent of laboratory periods is devoted to what is essentially manual training, thus mechanical drawing periods, forge and foundry practice are of this nature. In such cases one unit of credit is allotted for each two and a half hours spent in the laboratory, shop or drawing room. Where outside work in writing a report is required, additional credit may be given.

Undergraduates at Cornell carry from fifteen to twenty hours of work per week. Each hour in a lecture or recitation class entitles the student to one hour of credit; each two and one-half hours in the laboratory or field, one hour. Thus a student registered for eighteen hours of work might have one five-hour lecture course, meeting five times per week, two three-hour lecture courses, one three-hour recitation course, in a foreign language say; and three laboratory periods, one of which carries an extra hour of credit for outside work in writing a report. He spends then, each week, twenty-one and one-half hours actually in the classroom or laboratory. That would be less than four hours per day on his studies. But, as it is expected that

he will devote two hours of home work in preparation for every hour of class work, it follows that, with a schedule as here outlined, some twenty-eight additional hours of outside study are required of him in connection with lecture and recitation classes. Add one hour each for writing the report for the two normal laboratory periods and two and one-half hours more for the report on which an extra credit hour is granted and we have a total of fifty-four hours devoted to intellectual labor. That would be nine hours per day.

Probably the majority of Cornell students do not devote so much time to their university work. In the engineering colleges and the special course in chemistry it is not unlikely that they do, but probably from thirty to thirty-five hours per week or from five to six hours per day comes nearer the amount of time devoted to study by Arts, Agriculture and Law men. The Medical College students (graduates) and the Architecture students have long hours but a large part of their time is spent in laboratory and drawing practice. This estimate of a theoretical average of nine hours per day of study at Cornell was made independently of a similar computation arriving at a like result recently published by a member of the faculty. His figures furnished the basis for several editorials in the university daily, The Cornell Sun, conducted by undergraduates, carrying the complaint that Cornell students were compelled to work too hard. These editorials had an interesting outcome in that they led to the publication of statements in other

college papers in regard to conditions at their institutions. At both Princeton and Yale it appears that students do much less work, that, in fact, the undergraduates themselves realize that they are under- rather than over-worked. It was figured that the average Princeton man spends from twenty to twenty-five hours per week on his studies, the Yale man even less, and that the "passing mark is within the reach of everybody not publicly confined." "Almost nobody is ever expelled." Undergraduates themselves say that "the freshman year in college (Yale) is not as hard as the preparatory years just passed and that the two final years are not as hard as the first." At Michigan it was thought that in the professional departments perhaps as much as nine hours' application per day was required, that this might be excusable in view of the seriousness of their work, but that the literary students probably studied only four or five hours per day. It was felt that there would be cause for complaint if they had to do more because the "laboratory of general culture is as much without the classroom as within."

From this it will appear that in comparison with students in other schools, Cornell undergraduates do work hard. It is, in fact, compulsory. The credit hours per week constitute the number of hours' credit given per term. The Arts student must average fifteen hours per term or at least one hundred and twenty hours in the eight terms of his four years' residence; in the engineering schools a considerably greater number of units of work are

required to secure the degree. Poor work is punished by suspension or permanent dismissal. It is necessary to hold to such rigorous standards because the pressure of numbers, in view of the limitations of equipment and faculty, requires that the unwilling and unfit be eliminated. The Cornell degree means four years of conscientious application.

While the faculty regulations do compel the students to work, it may be complained that the undergraduates take too little interest in their studies. Scholastic attainments are no longer the vogue; high standing in classes does not excite the admiration of fellow students. It is, for instance, difficult to maintain a debate club. Scholarship as such is not prized, except by a few. It is not difficult to see why this is so. The undergraduate demands a present and adequate reward for his efforts. This may be the applause or admiration of his fellows, a position of dominant leadership among them or a substantial money return from some student business enterprise. Athletics provide opportunity for winning applause and hero worship almost ad libitum. If only indulged in vicariously, they supply a strong emotional stimulus. The musical organizations are effusively greeted at their every appearance and the man who gains a place in them is rewarded further by an extended concert trip about the country each year. Managerial positions in connection with the athletic teams afford similar opportunities for travel. Competition for all such places is stren-

uous. The editorial boards of various undergraduate periodicals are at liberty to impress the university community with their views on various matters and the business managers get a comfortable revenue from the advertising these publications carry. Contrasted with all this, the paltry prizes of twenty-five and fifty or one hundred dollars for the best essay, or poem, or speech or for high standing in class are very poor incentives to effort. Furthermore, a scant line in the college daily is about all the undergraduate recognition accorded the winner. Again, these things are faculty managed and that in itself puts them below par. When it is added that the undergraduate is constantly being invited to discount the future value of his studies by the man-of-affairs lecturer and by magazine articles, which often decry college training for the simple reason that the majority of periodical readers are not college graduates and are, therefore, pleased to learn that the possession of a college degree confers no special advantages, there is little occasion to wonder that only a scant half dozen competitors, perhaps, from among thousands who are eligible, enter a contest for one of the scholarship prizes. It would be interesting to note the effect of making some of these prizes, not one hundred, but one thousand dollars; of printing the winning essays in full in the college daily, with comments and reviews by faculty members interested in the subjects; of sending the winners as scholarship representatives of Cornell to other universities to give talks on their particular themes.

At the End of Goldwin Smith Walk

The Path to Forest Home Village

The setting aside, in 1920 for the first time, of an hour devoted to a university Convocation for the recognition of scholarship proved a successful step in this direction.

It is not meant to imply that zest for study is completely lacking at Cornell. On the contrary deep interest is often shown by a number of students in a course; and some courses are perennially popular with the undergraduates because of their content or the personality of the lecturer. But, as has been hinted earlier, the great mass of undergraduate students are fitted neither by talent nor inclination to become intellectual prodigies. For that class of students one must turn to the Graduate School. That it is worth while, however, for an undergraduate from purely selfish motives, to strive for high marks is indicated by a recent compilation from "Who's Who" in which it was shown that of three hundred and forty-eight high honor men of Harvard, Yale, Princeton, Amherst and Brown, one hundred and thirty-one had contrived to get their names in that list of distinguished personages.

In the Graduate School only students who have already secured a bachelor's degree are enrolled. The faculty of the Graduate School is made up of those members of the faculties of the other colleges who are personally directing the work of graduate students in any one year. In reality the graduate students themselves select the faculty, for each candidate for an advanced degree chooses the men who will direct his work. The men cho-

sen are usually themselves investigators as well as teachers, since such men are best fitted to guide the beginning research worker. The purpose of the Graduate School is to contribute to the advancement of knowledge. Each student registered in it elects some problem in the subject in which he is most interested and the solution of this problem comprises the major part of his work. In addition to this, he selects one or two minor subjects, usually related to the major study; to these he devotes the rest of his time. It will be appreciated that working under the direct supervision of two or three specialists and confining attention to two or three related subjects is conducive to intensive study on part of the advanced students. Then undergraduate standards of conduct are wholly forgotten; study and the attainment of a solution of the investigation in hand become the chief end of existence. The results secured in the major study are made the subject of a thesis. The titles of some of these works are indicative of the highly specialized character of present day investigation, so much so, in fact, as to be amusing to the layman because of their technicalities. Thus we have, for example "The Fluorescence of Anthracene," Perithecial Development of Sphaero theca humili," "Plane Sextic Curves Invariant under Birational Transformation." After the thesis has been completed and accepted, the student must acquit himself creditably in an oral examination, that may be three hours long and is given by his committee, before the advanced degree will be conferred upon

him. It is worth noting that one of the two first advanced degrees given by Cornell was conferred on David Starr Jordan, later chancellor of Leland Stanford, Junior, University and that Chancellor Jordan and Andrew D. White are the only persons on whom Cornell has bestowed honorary degrees. Every other Cornell degree has needed to be earned by actual study at the university.

It would not be fair to omit mention of the Summer Session in a description of the instruction given at Cornell. This extends over a period of six weeks, from the second week in July to the middle of August. During this time outdoor Cornell is in its most attractive phase; the skies are clear during the day, yet the weather is cool and delightful and almost every evening witnesses a beautiful sunset. The Summer Session, accordingly, is particularly noted for the pleasant opportunity it offers for outdoor natural history study. The flora, the fauna, particularly the birds; the geography and the geology of the Cornell region are then all studied on a multitude of organized excursions. These go out afoot, by boat on the lake, by automobile and in special trains; sometimes two and three hundred persons on a single trip. A series of courses in music is another feature of the Summer Session that attracts hundreds. Formerly nearly the total enrollment of summer students consisted of teachers from other institutions who came to brush up on their subjects or get a start in new ones. Recently there has been an increasingly large proportion of under-

graduates and preparatory students who utilize this opportunity to anticipate work in the regular sessions or to make up deficiencies. In some respects the summer work is not so exacting as the winter instruction; for example, students are not required to keep up with the work on pain of dismissal. This, combined with the greater sociability and the many popular lectures and music recitals, imparts a sense of relaxation that every one enjoys.

The educational activities of the university are by no means confined to the formal instruction given in classes. The incidental mention, on preceding pages, of general lectures, music recitals and extension work has indicated this. But such extra-curriculum features have a far wider scope than could be deduced from such remarks. Their extent would be better understood after inspection of any issue of the weekly calendar published by the university; nearly every partly or wholly free hour is scheduled for some event of popular interest.

A SNOWY DAY

Several series of lectures, in which each address was by a specialist on a particular phase of the general subject, on such broad topics as "The History of Civilization," "Eugenics," and "International Law" have been a feature in recent years.

These occasions are usually open to every one interested. The variety and the merit of the year's program is such that it would in itself afford the foundation for a liberal education. Leaders of the world's thought and achievement speak at Cornell, great musicians favor the university with their accomplishments. In view of this and the very attractive environment of the university it is rather surprising that a larger number of people with leisure have not made their homes in Ithaca and enjoyed these advantages. Though the university thus actually does much in extending its teaching influence to the community as a whole, it must be admitted that its facilities are not quite broad enough to enable it to meet all demands; since only a sorry negative could be returned in reply to the following inquiry recently received at the President's office:

> "I am studying the migration of birds, and, with a view to learning how much the sense of direction is dependent upon distinctive odors of different localities, and the distance such odors carry, I am taking the very great liberty of inquiring whether you can smell Philadelphia when the wind blows from the south—and if so, what it smells like?"

Probably a majority of the students at Cornell are the sons and daughters of tradesmen, manufacturers, professional men, doctors and lawyers; and farmers. A large proportion of the students with fathers in business secure places in the parental enterprises immediately after graduation. This is one of the reasons why it is so difficult to get specific data with regard to the extent to which the university graduate profits directly by his training. Where a niche is provided for the graduate simply because he is his father's son, it can not fairly be said that his later position in life is due to his own initiative, much less to the fact that he spent four years at an institution of higher learning. It is probably to such men, as a class, that the social advantages of a college career are of paramount importance. There is, however, a large class of prospective students whose individual decisions, or that of their parents, in regard to a university course, yes or no, are determined primarily by the outlook for a substantial material reward for such preparation. It was with that viewpoint in mind that the writer addressed a circular letter to a number of faculty members asking what opportunities for earning a living were open to graduates of their colleges or who had specialized in their departments. From the replies received it is apparent that members of the faculty are very little in touch with the later careers of the students who have been enrolled in their classes except in the cases of a few in whom they have been especially interested. Possibly if

the plan were adopted of giving each graduate with his diploma five or more cards; one of these to be mailed back to the university secretary each year with answers to printed questions filled in, more accurate information on such points would be available shortly. Statistics made up from replies for a series of years to specific questions of the kind that follow would certainly be very interesting. What positions have you secured because of training, either general or technical, you received during your university career? How large an income do you earn as a direct result of your college training? How much of an increase is this over last year? What are your present prospects for advancement? Of what opportunities have you knowledge that are open to a college graduate with some special kind of training? What have you been able to contribute, because of your training, to the general welfare or betterment of conditions, material or moral, in your community? Possibly it would be well to have the replies anonymous in order to minimize a natural tendency to paint the record in glowing colors, on the one hand, and, on the other, to encourage those who have not achieved as much as they had hoped, to contribute their more pessimistic reports.

Lacking such statistics, only very general answers can be made to the kind of inquiry the questions outline and the general content of the above paragraph suggests. Probably almost every one of the graduates of the Medical College enters into the practice of his profession. As most per-

sons have a general idea of the fortunes of the medical practitioner in their community, it is hardly necessary to discuss the doctor's career here. Moreover, the Cornell Medical College is now a graduate school and requires seven or eight years' study to secure its degree. This puts the Cornell doctors in a class by themselves not comparable with the graduates from the other professional colleges of the university who secure their degrees after only four years of study. Like the graduates of the Medical College most of the Doctors of Veterinary Medicine practice their profession after securing their diplomas. However, the writer knows of one who engaged first in photography and is now a life insurance solicitor. Furthermore, the Veterinary course requires only four years of study, permits of some specialization during that time and offers a rather wider variety of choice of particular pursuit within the profession than is open to the physician. Recent graduates of the Veterinary College can readily secure salaried positions at two thousand dollars per year.

In the percentage of its graduates that follow the profession for which they have been trained, the Civil Engineering College probably comes next after the medical schools. It is stated that eighty-four per cent of those who receive the Cornell Civil Engineering degree engage in strictly civil engineering work after graduation. Probably most of these begin at salaries of from seventy-five to eighty-five dollars per month. In some cases, however, long established firms of civil engineers will offer a

graduate ninety to one hundred and ten dollars per month because he has had theoretic training in reinforced concrete construction, as this is a new development in the profession and the older men appreciate that they are not fully conversant with its technical details. If those who engage in contracting work on their own account are excepted, an average salary of perhaps thirty-five hundred dollars per year would probably measure the material success of the civil engineers who have had four or five years of experience and who have proved capable men in their profession.

It is possible that the percentage of men who go on in their profession is even greater in the case of Architectural College graduates than of those with the civil engineering degree. In both cases this is explained in part by the fact that the total enrollment in these colleges is not large. In other words the graduates are so few that they can be absorbed readily by the demands of the respective professions for new men. The outlook for civil engineers is less promising, however, at the present time than for the architects because construction work, particularly railroad building, has in large measure abated. But, if the Panama Canal is completed, governmental railroads in Alaska are now on the slate. Yet within New York State both the barge canal and the Ashokan Reservoir projects have been completed, many miles of state road have been built and no similarly large scale works are in prospect. Thus opportunities for the civil engineer are apparently fewer than

those open to the young architect in the same position, since the erection of new buildings, public, industrial, commercial and dwelling-house continues apace and each year sees more substantial structures, of better design and ever more intricate in their interior construction and specialization in material. But, in the case of the modern steel structures, the services of the civil engineer are in as much demand perhaps as those of the architect, in fact here the two professions often merge in one man. The college course that each pursues has also much in common. An aptitude for mathematics, especially as applied to mechanical calculations, is essential to happy progress in either course, but while mathematics may be termed the rock on which most embryo civil engineers are broken, lack of artistic instinct more commonly spells disaster in the college career of the architect. In other words while many set out to be civil engineers or architects, comparatively few are chosen, because the majority are not endowed with natural ability in mechanics and design. Thus the discussion has brought us back to the original postulate that the civil engineers and architects in most cases follow their professions because only a comparatively small number secure diplomas. The young architect very commonly begins his career as a draughtsman in some established firm at a salary of perhaps one hundred dollars per month. This may very shortly be increased by fifty dollars or considerably more. But to attain a larger success it is probably incumbent on the ambitious

graduate to open an office of his own after a few years' experience with an established firm. If he is located in a good community and possesses, in addition to his ability as an architect, the knack of establishing cordial business relations with his prospective clientele, he may hope very shortly to earn from five to eight thousand dollars a year in the practice of his profession.

Graduates from the Sibley College of Mechanical Engineering have a very much broader field for employment open to them, both as to the variety of occupation possible and the wealth of opportunities along a single line of endeavor, than is the case with the graduates of any of the other professional colleges so far mentioned. This was especially true during the period of fifteen years or more of great industrial development that recently derived a new impetus from war needs. Because of the active demand during this time for trained mechanical engineers, the courses in Sibley College acquired a sort of vogue that attracted a great number of students, many of whom were only indifferently qualified, either in natural endowments or zest for the work, to become successful in the mechanical engineering profession. At Cornell it was, indeed, quite the fashion for a number of years to be an M. E. student, in fact the undergraduate who confessed to enrollment in Arts or one of the other colleges actually lost caste. Curiously enough, such distinction was owing, in part, also, to the fact that the Sibley students had the reputation of working harder than the men in Law or Arts, the

other colleges having a large enrollment. The reputation, and the fact, of the hard work endures into the present but no especial undergraduate prestige now attaches to registration in Sibley. The number of students, however, continues large. It must be remembered, also, that opportunities for mechanical engineers are quite varied and it is estimated, moreover, that scarcely one-half of the men who graduate from Sibley College go into engineering work. The courses offered by the college are considered to be excellent business training, especially for sons who will enter manufacturing businesses conducted by their fathers. The broad outlet for graduates who have no such connections seems to be the apprenticeship courses that many of the large manufacturing and operating firms of the country offer. The beginning pay in these is usually one hundred dollars per month and after a few years those who show especial aptitude for the work receive from one hundred and fifty to two hundred and fifty dollars per month for their services. To indicate the breadth of the field open to the experienced mechanical engineer, it will probably suffice to suggest that he may engage in the design, erection, operation, testing or

A CORNELL "R. O. T. C." GROUP

sales division of any of the multitudinous industries that make either machines for power development or machinery that requires power to drive it, either steam, electric or water power. No—even the above broad statement is inadequate to indicate the many branches open, but it does not seem possible to put their extent in a few phrases. This very variety, however, points to another difficulty which confronts the young mechanical engineer, that of finding his particular opportunity.

The legal profession seems overcrowded at present for the beginner. The very dissimilar university courses of mechanical engineering and law apparently enroll numbers of students with somewhat the same object in view, namely, to utilize their training in various business pursuits rather than to enter their professions. Many Law School graduates fail to take the examinations for admission to the bar and of those who do and pass quite a few abandon legal practice after several years. The struggle to establish himself is even more difficult, possibly, for the young lawyer than for the young doctor. But it must not be inferred from this that the legal profession is altogether unprofitable. Nor should such a conclusion be drawn from published statistics that put the average lawyer's income at a very low figure. Such tabulations take into account the earnings of those who after a few years quit practice, and, since their number is large, it is quite probable that this unduly depresses the average. If only lawyers with offices of their own and of at least five years'

experience entered into the reckoning the figures would no doubt be more encouraging to the young aspirant for legal honors and emoluments. If this be considered unfair it may be pointed out that in the other profession in which beginners are likewise expected to starve for a few years, that of medicine, an additional four years of study is required to secure a Cornell degree and after that very probably a year in hospital work. All this before he can even begin to earn a living.

If mechanical engineering was the vogue among Cornell students a few years ago, agriculture may be said to occupy the same position now. With this distinction, however, that the vogue of agriculture is due to the present-day wide opportunity for the graduate of that college, even greater than that in the past open to the engineer. Agriculture is popular also with students from New York State because they enjoy free tuition in the college and because the prescribed general course is now so liberal as to justify the faculty in conferring the degree of bachelor of science without the limiting clause, "in agriculture," as was formerly done. It is the common impression that a course in agriculture fits a man for either one of two things: to go back on the farm and practice scientific agriculture or to teach scientific farming. This is far from being the case as would be perceived from a mere enumeration of the diverse interests that find shelter under the broad cover of the College of Agriculture as organized at Cornell. However, the present popularity of the course, the scope of the work embraced

in the college and the fact that its breadth is not well understood by the public, all warrant a little more extended treatment than that.

It will be fitting to begin with a consideration of the departments in which the instruction accords most nearly with what may originally have been conceived as the province of the whole college. Thus the teaching of the Department of Farm Management is intended primarily to fit students for the management of their own farms. Besides training in the natural sciences that underly agriculture, e. g. botany, students specializing along this line are advised to give considerable time to the study of farm crops and animal husbandry. It is estimated that graduates with such training, where situated on adequate farms, are earning labor incomes of two thousand dollars per year and more, over and above interest on the investment. Such students, when employed by farm owners, do not receive much higher pay than the hired man, but the work is accounted as practical experience, preliminary to starting for themselves. As suggested above, the courses offered by the Department of Farm Crops fit in with those of the Department of Farm Management. Specialization in Farm Crops has, however, also secured positions for a number of students as teachers in agricultural subjects, experiment station workers and farm bureau agents, as well as in various commercial enterprises connected with agriculture, for example in the seed and implement business. A tabulation of the incomes of recent graduates who have specialized in

the department shows that on the average they begin at fifteen hundred dollars per year and after several years receive two thousand dollars.

Special study in the Department of Soil Technology similarly qualifies men for expert positions in the fertilizer business, in drainage and irrigation enterprises and in governmental soil survey work. These, and like opportunities, are growing in importance, but about one-half the men who have specialized in the Soils Department in the past are engaged in teaching the subject. The salaries received range from fifteen hundred to three thousand dollars, according to the measure of ability and experience of the different men. In addition to a general knowledge of agricultural subjects, students in this line find the study of plant physiology, chemistry, physiography and physics of great importance.

While the study of the soil is certainly of fundamental importance in agriculture, it will be appreciated that the special training offered by a department of soils in itself tends to create opportunities for the graduates. Thus, if one fertilizer company employs an expert in soils, the others must soon follow suit. The same logic applies to quite a few of the other technical departments of the College of Agriculture; their relation to agriculture is apparent enough, but the occupations of their graduates are quite foreign to any conception of the old time farmer who turned furrows, sowed and reaped.

While men from the soils department tend to

occupy technical positions, it is easy to understand that the graduates who have done considerable work in the Department of Dairy Industry find their opportunities much more generally in commercial work directly connected with the making of dairy products. There is a great demand for such men to manage large dairy plants, though there are also governmental and teaching positions to be filled. In addition to the practical and theoretical training offered by the department, considerable knowledge of bacteriology and chemistry are essential in this line. Salaries are somewhat higher than in other fields ranging from two thousand dollars per year up. In the Department of Vegetable Gardening the best opportunities are similarly in commercial vegetable production. This field is comparatively new and as other agricultural colleges are beginning to realize its importance there is a dearth of men for teaching positions. One man just graduated was offered a salary of fifteen hundred dollars; two others were in line for a position paying eighteen hundred dollars. The man in touch with the latest developments in vegetable gardening, who has also a knowledge of pomology and floriculture, will apparently have no difficulty in selling his services to good advantage for some time to come. Men from the Department of Floriculture, who have had but little practical experience, have readily secured positions at from seventy-five to one hundred dollars per month. Teaching positions are open, but the salaries do not attract the best men, as the prof-

its of commercial florists are much greater. Again, work in this department may be made secondary to work in the Department of Landscape Art, in which case the student is fitted to take a good position as superintendent of an estate. Graduates from the Department of Pomology receive from twelve hundred to fifteen hundred dollars the first year they are out of college. In addition to commercial and teaching positions, there is a great demand for men trained in pomology to undertake investigations of special problems for individual fruit growers. Such work is allied with the kind of training offered in the Department of Plant Breeding and that of Plant Pathology, although these departments, like that of soils, tend rather to develop technical experts who are more apt to find their opportunities in governmental investigation or university research work. It is interesting to note that wherever the departmental work takes on this technical aspect it tends to become a graduate study. The Departments of Plant Breeding and of Plant Pathology are no exceptions to this rule. The reason is simple enough: a broad fundamental training is necessary before these highly specialized studies can be undertaken with profit. Thus in Plant Pathology students are expected to have extensive knowledge of organic and physical chemistry, plant physiology and botany in addition to a general training in agricultural and cultural subjects. In consequence, only seniors and a few juniors find it possible to take up the work, and those who wish to follow it as a pro-

fession study for the doctorate degree. This means at least three years of postgraduate work, but the doctorate graduates from the Cornell department are all earning salaries from two thousand up to three thousand dollars. Such salaries are, however, exceptionally high for even doctorate graduates, and are due in this case to the fact that the subject is comparatively young and because its importance is realized, for the successful control of plant diseases is often a limiting factor in satisfactory crop production. In the Department of Entomology, which at Cornell is a rather narrow title for a department that includes a wide variety of biological branches under a simple organization, much of the work is also quite technical and specialized, though not so much so as in the case of Plant Pathology. But, because biology is one of the fundamental natural sciences of cultural value and popular interest, there is a quite wide demand for students of the subject who have only the bachelor's degree as teachers in high schools and in the governmental bureaus. Such men receive beginning salaries of about fifteen hundred dollars. On the other hand, the study of economic entomology is perhaps fully as technical as that of plant pathology, yet it is doubtful whether many of the doctorate graduates in this branch of biology receive beginning salaries of over two thousand dollars.

The foregoing paragraphs will perhaps suffice to indicate the variety of instruction offered in the College of Agriculture at Cornell and also that

this college is developing ramifications that were hardly thought of a few years ago. The list is not complete for such important departments as those of Animal Husbandry, Rural Engineering, Rural Education and Botany have not been included. There remain, however, two departments that merit particular mention here because their subjects command such wide popular interest: the Department of Forestry and that of Home Economics.

It was admitted by those most closely in touch with the situation that the forestry profession before the Great War was overcrowded. Despite this fact, the Department of Forestry, then recently organized to take up the work that ceased at Cornell when the former College of Forestry was discontinued, had already placed a number of men in advantageous positions in field work. Even undergraduates of senior standing secured summer positions paying fifty dollars per month and expenses. The outlook for the professional forester has, however, improved greatly since the Great War; the demand for trained men is greater than the supply. Even if this were not the case the subject would continue to enlist a number of young enthusiasts in whom the fascination of a life in the open subordinates all other consideration. They conceive the forester striding through the untamed woodland and they want to take the course. Much the same spirit urged the youth of an earlier generation to seek the wild west. The same motive quite commonly actuated those students who

desired to become geologists; the possibility of engaging in field work in remote regions was a great lure. That this was so, despite the fact that both of these professions promised comparatively small reward in fame or money, proves that sordid ambition even in a commercial age does not always determine the choice of a career. The need of more paper pulp has since, however, made the forester's profession lucrative; as the need of oil has made the geologist's likewise profitable.

The rapid establishment and continued development of departments of domestic science, like that of Home Economics at Cornell, in other institutions of higher learning, is perhaps indicative of a new recognition that the largest field for woman remains the home. Feminine leaders are coming to a realization that the emancipation of the home rather than freedom from its duties in business and professional pursuits in competition with men should be the ultimate goal of women's activities. This emancipation is to be brought about by scientific planning of the house and its appointments and by systematic execution of the household routine. It is accordingly quite fitting that the Home Economics Department should be incorporated in the organization of the College of Agriculture for the farm home has perhaps been in greatest need of relief from drudgery and lack-lustre occupation. At present most of the graduates from the department engage in teaching which further indicates the demand for the diffusion of such knowledge. In institutions where meals

are served to a number of people they find employment as dietitians, other graduates become stewards, expert buyers and settlement workers. In such positions they receive salaries ranging from one thousand to fifteen hundred dollars per year while the teachers earn two thousand dollars and more.

It is not pretended that the list of specific vocations suggested in connection with the various colleges and departments already mentioned is in any sense comprehensive. A regular four years' course in hotel management is a recent addition to the list of vocational possibilities. But there may be readers of these pages who are seeking a particular life-work that demands the technical training which a university can offer, something that attracts them personally and will afford an end toward which they can bend the studious efforts of their undergraduate years. Their best recourse will be the lists of positions that are filled through examination and appointment by the Civil Service Commission of the federal government. An astonishing diversity of employments is open in the government service to educated candidates and the notices of examinations that the commission issues give very detailed statements of the necessary requirements and qualifications for each. The initial salaries offered are also a very good index of the minimum pay received in the various occupations, whether in the government service or elsewhere.

The above remarks are especially applicable to the vocational opportunities afforded by the many

subjects, and combinations of them, that may be studied in the College of Arts and Sciences. While several departments, notably those of Chemistry and the School of Education outline courses of study that must be followed by students who wish to follow chemistry or teaching as a profession (and have the department's recommendation as to their fitness for such pursuits) the majority do not, and the students interested, say, in such vocations as journalism, banking, and philanthropy, must be advised by the professors most directly concerned as to the most profitable use of their time. Specific information, in so far as it is available, may however, be of interest. The Department of Chemistry is in many respects a professional college and a distinctive degree, that of Bachelor of Chemistry, is granted students who complete its prescribed course. It is claimed that practically every one of the graduates can be placed in positions that pay from fifteen hundred dollars a year up to two thousand dollars, primarily in the commercial and industrial field, but also in the teaching and governmental occupations. Applications for men trained by the department are being posted continually throughout the year. In the allied science of physics the demand is also active but the opportunities, other than in teaching positions, are rather specialized; to qualify for which requires, as a rule, postgraduate study. For instance, one of the men who recently received the doctorate degree is now employed as optical expert by a firm that manufactures lenses for automobile and railroad lamps.

Postgraduate study is equally essential for professional careers in the natural sciences, geology, botany and zoölogy.

The title of one of the courses, Municipal Administration, in the Department of Political Science, immediately suggests the new position of city manager that the commission form of city government is making possible. In the same department the study of statistics, in combination with special mathematical training, leads to actuarial positions in life insurance companies. Somewhat similar opportunities are offered by the government census bureau. In fact the director of the 1910 census received much of his training in this Cornell department. Psychologists have recently secured many business positions—it is often difficult to say whence the demand will come for a man with some special sort of knowledge. Some departments are distinctly adjunct, but may, nevertheless, be very much worth while. Thus the Department of Oratory does not aim primarily to prepare men for the lyceum or Chautauqua platforms but

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rather to help the student of other subjects to acquire ability to express himself well in public. Engineers, architects, lawyers are more and more coming to realize the value of such preparation.

In the subjects that are generally known as the humanities, ancient and modern languages, including also English, history, philosophy and mathematics, the direct vocational opportunity is almost wholly in the teaching profession. Students with first degrees who have shown ability in such of these subjects that are taught in the secondary schools may readily secure positions paying at the beginning one thousand to fifteen hundred dollars. After several years experience the average salary is perhaps two thousand dollars.

Women students preparing to teach are attracted especially by the languages. Graduate work in the humanities, for those who have the special inclination and ability to pursue it far enough, prepares for college instructorships and the eventual occupancy of a professorial chair. Taken as a group the humanities are the basis of all culture, knowledge of them is essential to nearly every one who makes writing a business, and the modern scientist who is unable to read German and French is in a sorry plight.

When only hundreds enjoyed the advantages of a university education, whereas thousands are now enrolled in American institutions of higher learning, all graduates, somewhat regardless of exceptional fitness for such pursuits, could expect to be absorbed into the, so-called, learned pro-

fessions. The great numerical increase in university students now demands that the training afforded be of wider scope and that the institution itself should exercise a selective function. The dullards and unwilling should be eliminated from participation in the instruction offered; students of exceptional mentality should be sorted out for the scholarly careers; the numerous class that is assured financial independence, by virtue of family fortune, should receive primarily the cultural training that will make for intelligent citizenship rather than personal advantage; and by far the largest group, those possessed neither of genius nor inhibited by stupidity, the class that needs to earn a livelihood by the initiative and efforts of its individual members directed to furthering the constructive work of the world, should have made available to it such a variety of vocational training as will permit the particular qualifications of each learner to be utilized eventually to best advantage, for the benefit of the community at large, by fitting him to the occupation for which he is best adapted. Cornell, with her motto: "Where any person can find instruction in any study," perhaps without further conscious direction, tends more and more to conform to such an educational scheme.

CHAPTER IX

GEOGRAPHY OF THE ITHACA-CORNELL REGION

AMONG the undergraduates, at least, there will probably be a good many readers of these pages of the opinion that only the predilection of the author warrants the appearance of this chapter in the volume. Accordingly, it may be well to disclose to such critics, at the outset, the surprising fact that a number of individuals have asked that a discussion of this kind be included in the book. If that is not enough justification for the insertion of some modern, every-day geography in a college book, then the following items from the experiences of the two founders of Cornell University will, perhaps, serve to convince continuing objectors that, even if a bit unpalatable, a little geographic reading, especially on the subject of the environment of their alma mater, will do them no harm.

Ezra Cornell had very little formal schooling. Later in life he acquired by his own undirected reading and observation a vast store of useful knowledge. He earned his fortune by promoting, constructing and operating telegraph lines in western states, and finally made it secure by consolidating these lines into a *Western* Union Telegraph Company. Again, he was able to increase enormously the value of the university's endowment by investing the funds in western timber lands. In both instances, then, success depended, primarily, upon an intimate knowledge of the

geography of those areas. And yet, as he himself said, the only lesson in geography he ever had was in giving the boundaries of the state of New York, which was said to be limited on the west by the "unknown regions."

Under the circumstances it would not, of course, be surprising if Ezra Cornell had suggested that a mite more emphasis and accuracy be put into geographic training than was afforded him. If his case, however, be thought exceptional, the testimony of Andrew D. White may be more to the point in regard to the basic value of geographic knowledge. Quoting from his "Autobiography": "On arriving at the University of Michigan in October, 1857, I took especial charge of the sophomore class. Among my duties was their examination in modern geography as a preliminary to their admission to my course in history, and I soon discovered a serious weakness in the public-school system. In her preparatory schools the state of Michigan took especial pride, but certainly at that time they were far below their reputation. If any subject was supposed to be thoroughly taught in them it was geography, but I soon found that in the great majority of my students there was not a trace of real knowledge of physical geography and very little of political. With this state of things I at once grappled, and immediately "conditioned" in these studies about nine-tenths of the entering class. At first there were many protests; but I said to my ingenuous youths that no pedantic study was needed, that all I required was a prepa-

ration such as would enable any one of them to read intelligently his morning newspaper, and to this end I advised each one of them to accept his conditions, to abjure all learning by rote from text-books, to take up simply any convenient altas which came to hand, studying first the map of our own country, with its main divisions, physical and political, its water communications, trend of coasts, spurring of mountains, position of leading cities, etc., and then to do the same thing with each of the leading countries of Europe, and finally with the other main divisions of the world. To stimulate their interest and show them what was meant, I gave a short course of lectures on physical geography, showing some of its more striking effects on history; then another course on political geography, with a similar purpose; and finally notified my young men that they were admitted to my classes in history only under condition that, six weeks later, they should pass an examination in geography, full, satisfactory, and final. The young fellows now took their conditions very kindly, for they clearly saw the justice of them. One young man said to me: 'Professor, you are entirely right in conditioning me, but I was never so surprised in my life; if there was anything that I supposed I knew well it was geography; why, I have taught it, and very successfully, in a large public school.' On my asking him how he taught a subject in which he was so deficient, he answered that he had taught his pupils to 'sing' it. I replied that if he would sing the answers to my questions, I would admit

him at once; but this he declined, saying that he much preferred to accept the conditions. In about six weeks I held the final examinations, and their success amazed us all. Not a man failed, and some really distinguished themselves. They had all gone to work cordially and heartily, arranging themselves in squads and clubs for mutual study and examination on each physical and political map; and it is certain that by this simple, common-sense method they learned more in six weeks than they had previously learned in years of plodding along by rote, day after day, through text-books."

Hence, undergraduate readers, do not murmur because some statement of the geography of your new environment is thrust upon you, herewith; for of a certainty you have good warrant that it may be conned to advantage. The Ithaca-Cornell region is one of great geographic interest, and if, in your rides and rambles to its points of scenic attraction, you can see with the mind as well as with the eye, you will find your pleasure doubled. As for Ithaca itself, remember it was the home of Ezra Cornell, and that, in addition to his love for the university, the Founder also had great pride in his town, and that, despite his early deficiency in such training, no one better than he understood the town's geographic advantages and handicaps. For the sake of conciseness the paragraphs that follow are made quite formal. If some of the matter appears quite obvious to one on the ground, scarcely worth setting forth in print, consider how necessary to a clear understanding it will be to those, perhaps

the members of your own family or some sub-freshman, who may read these pages at a distant place.

The Ithaca-Cornell Region is located in western, central New York at the southern end of Cayuga Lake (the second largest of the Finger Lakes that characterize the general district) and centers about the city of Ithaca, which has a population of seventeen thousand and four people (official report, federal, 1920, census) and is the site of Cornell University.

During much of the most ancient geologic time the region was the bottom of a shallow interior sea. This sea varied in dimensions during the different subdivisions of those early geologic ages, was at times widely connected with the open ocean, at others had only a constricted outlet, and seems to have at least once been converted into a saline, desert basin, when salts leached from surrounding formations were precipitated in thick, horizontal layers over its bottom. These layers of sodium chloride are the basis of the present-day salt industry of the region and from the days of early settlement furnished, by the medium of salt springs, the local supplies of this commodity.

It is evident, however, that the sea bottom must on the whole have been progressively sinking while clay, sand, salt and lime layers were being laid down; for while these have shallow water characteristics throughout their vertical sections, they nevertheless aggregate thousands of feet in thickness, as now existing, and that despite the

fact that much of their original upper mass has been removed by erosional processes. These clay and sand layers were eventually converted into shales and sandstones by the pressure of material (deposited later) of the same kind and by processes of cementation.

In the closing epochs of the ancient geologic periods, during the extensive earth movements that have been termed the Appalachian Revolution, and in which the Appalachian mountains were first uplifted, this region in common with wide adjacent areas to the east and west was raised high above sea-level. The uplift in this particular locality seems to have been essentially uniform, slow, and nearly vertical in direction, as the layered sediments were neither much fractured or disturbed. A (comparatively) slight compressive force was, however, exerted for the rocks were folded into a series of east-west striking undulations forming low arches and troughs in the rocks. The original slant to the south and west of the sediments deposited on the floor of the interior sea was increased by the uplift, as this was greater in amount to the east and north, but the total departure from the horizontal is only a few degrees.

Following the uplift came a long period of denudation at the end of which, in Cretaceous (more recent) geological time, the region in common with much of the rest of the continent had been worn down by rain and rivers to a nearly featureless plain. Another uplift followed, like the first practically without compression.

Thus, once again made a highland, the region also again became the scene of active stream cutting which continued until ridges between streams were rounded and valleys were worn and weathered broadly open. The slight slope of the strata to the south sufficed to make north-facing cliffs by weathering action, the most conspicuous of which, south of the Niagara cliff, was that due to the resistant top layers of sandstone in the Portage formation. To the east of Cayuga Lake this Portage escarpment or cliff is well developed in the Ithaca region along the north front of Turkey Hill and quite distinctly bisects the region into north and south halves. The part lying to the north belongs, in general, to the central lowland of North America, that to the south is part of the Appalachian Plateau. This small region, hence lies on the boundary zone between two important physiographic provinces. To the west of Cayuga Lake the Portage escarpment fades out as a distinct topographic feature and the merging of the plain and plateau upland is inconspicuous. Apparently the main drainage of the region at this time was by a stream to the north along the line of the Cayuga Lake trough. At Ithaca a number of streams flowing in broad, open valleys were confluent, both from the east and south, and these seem to have afforded most of the volume for the north-flowing Cayuga stream. Coming from the east was the Fall Creek following the base of the north-facing Portage escarpment. The valley next south of the divide formed by the Portage escarpment was

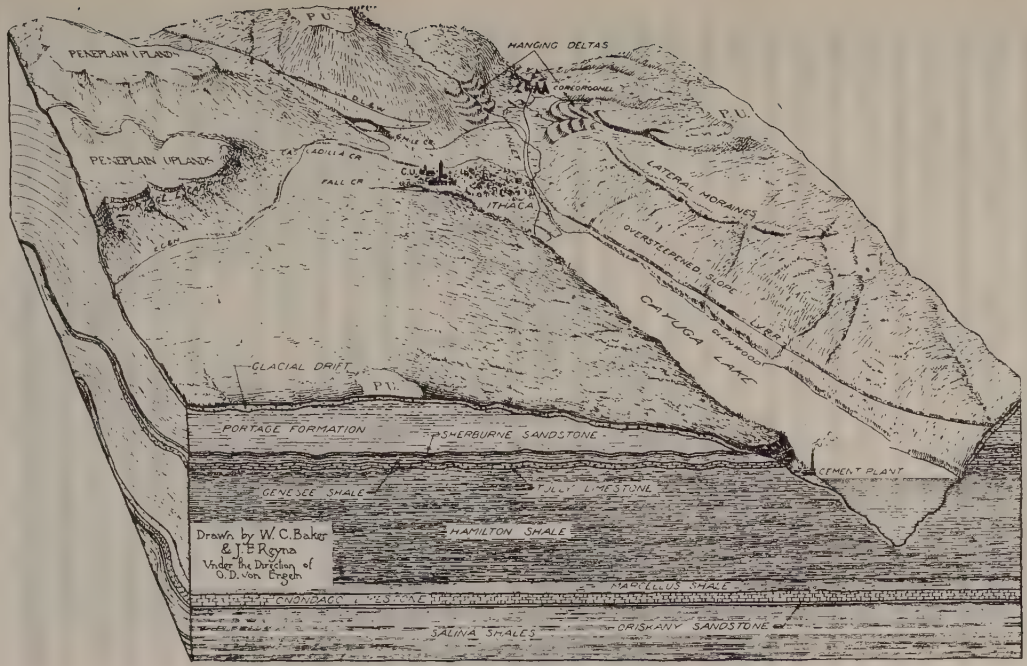
developed by Cascadilla Creek also flowing from the east and in its lower course parallel to Fall Creek. Two other streams, Six Mile Creek from the south and the Cayuga Inlet from the southwest, occupied similar mature valleys. The closely spaced points of junction of these streams resulted in the development of an extensive interstream plain by the lateral wearing and weathering away of the spur ends of the divides separating their valleys. A remnant of this plain is now occupied by the campus of Cornell University and the East Hill section of Ithaca with farm lands in the rear. The end of the Portage Escarpment is known as Turkey Hill, its continuation eastward as Mount Pleasant, the divide between Cascadilla Creek and Six Mile Creek is Hungerford Hill, that between Six Mile Creek and the Cayuga Inlet constitutes South Hill. The summits of these divides, as they extend southward, are slightly rolling (in a broad sense, level-topped) uplands and on their wider expanses probably present with but little change the topography of the Cretaceous wearing down to a plain. To the south, possibly some fifteen or sixteen miles from the present head of Cayuga Lake, an east-west divide separated the drainage described from streams flowing into the Susquehanna. The physiographic development in so far as it is apparent in the present day topography, is indicated in the block diagram which will serve to make clear the important relations.

There is some evidence of another uplift following the development so far described, but if this

took place its rejuvenating effect has been much obscured by shortly subsequent invasion of the region by glacial ice in very recent geological time. The advance of the ice was almost directly from the north in the Ithaca region so that it thrust its front squarely against the rising slopes and escarpments of the Appalachian Plateau border. The breaches in the plateau front, made by the north-flowing streams, however, afforded low altitude channels by which the ice could project lobes, in advance of the main front, for considerable distances into the highland area. These north-south valleys were, accordingly, first occupied by the glacier, and, as the ice thickened, they became also the main channels of ice movement southward; were, in other words, the routes of the thickest, most powerful and most rapidly moving ice currents. The erosive effect of the ice was thereby concentrated in the north-south valleys and these valleys were much overdeepened by ice erosion and thus the basins of the Finger Lakes, of which Cayuga Lake is one, with bottoms in some instances below sea-level, were developed. At the heads of the north-south valleys the east-west Susquehanna divide was shortly overtopped and the ice passing over proceeded to cut this comparatively narrow barrier completely away. Thus *through valleys* joining the northern drainage to the southern drainage by very low gaps were developed, of which the Cayuga Inlet and Six Mile Creek valleys in the Ithaca region are notable examples.

The lower end of the Cayuga Inlet valley, in

part possibly because it was originally larger, in part also because it was more directly in line with the ice movement, was eroded more deeply by the ice than the Six Mile Creek valley, when the ice current, coming in through the Cayuga valley, was divided by the nose of South Hill. Hence, while the Cayuga Inlet valley now enters the main Cayuga valley accordant with the present grade, the Six Mile Creek valley that was less effectively ice-eroded has been left in a *hanging* condition. The same relations are much more conspicuously apparent in the case of the east-west valleys, those of Cascadilla and Fall Creek. These troughs were nearly at right angles to the line of ice movement, hence were occupied only by diverted and relatively feeble glacial currents. Consequently, as streams once more flowed in these east-west valleys they plunged, at their lower ends, in a series of cascades to the levels of the much more overdeepened north-south Cayuga valley. As time went on the difference in resistance of the layers of the horizontal, bedrock-structure became effective in developing step falls, and as these progressively wore back upstream, the gorges were cut that now mark the north and south boundaries of the Cornell University campus, which occupies the western border of the portion of the earlier interstream plain that the ice erosion failed to cut away. Nearby are many other east-west streams that show the same hanging condition with reference to the north-south Cayuga valley and a similar later development of gorges and falls.



BLOCK DIAGRAM OF THE ITHACA-CORNELL REGION

A further complication in the development of the valleys must be considered. There were probably two, if not more, ice invasions of the region. After the withdrawal of the first ice, glacial debris, moraine deposited in the valley bottoms, commonly diverted the streams from the axes of the troughs to one side or the other of the valleys. After cutting through the thinner veneer of morainic stuff at such points, the streams were let down on bed-rock; into which they proceeded to cut side gorges. During the interval between glaciations these gorges developed to a much larger size than has been possible in post-glacial time. (It is possible that these larger gorges were developed during a preglacial uplift of the region and were obscured by the ice invasion and its results.) A second ice advance resulted in further morainic deposits not disposed as the first had been. Consequently the previously developed gorges were in part filled up and the streams once more started along new channels over the valley bottoms. In places they found the earlier gorges and rapidly scooped out the unconsolidated glacial material, elsewhere they entered on gorge cutting anew. Thus the middle and lower sections, especially, of the east-west streams are at present marked by amphitheatre hollows where the stream is flowing along the line of an interglacial (?) wide gorge and these are connected by short sections of young, post-glacial gorges cut into the bed-rock of the valley side.

Though much lowered, the east-west divides between the Susquehanna and the north-flowing

drainage were not wholly swept away in the formation of the through valleys. Furthermore, a somewhat prolonged halt in the withdrawal of the ice resulted in the development of a pronounced moraine-loop barrier across these valleys in the former divide region. Thus morainic ridges, plus so much of the original rock divide as remains below them, formed water-partings of considerable elevation during the later retreat of the ice and have continued so since. In the period immediately following the building of the moraines, north-flowing water from these divides was ponded back by the ice that still occupied the lower ends of the valleys and in this fashion a number of proglacial lakes were created. At first, both the Cayuga Inlet and the Six Mile valley had its separate lake (as well as some of the other valleys) standing at different levels according to the height of the divide at the south over the moraine barrier. In the Cayuga Inlet valley this was at about one thousand forty feet above the sea; in the Six Mile Creek valley at nine hundred and eighty feet above sea-level. A farther retreat of the ice resulted in the junction of the two lakes, the waters of the one in the Cayuga Inlet valley flowing around the nose of South Hill in falling to the lower level of the lake in the Six Mile Creek valley. As the ice melted back farther to the north, successively lower channels of escape for the water were bared and the lakes in accordance fell to lower and lower levels.

During the existence of the high level lakes a large amount of freshly deposited morainic ma-

terial was peculiarly available for stream transportation and this, plus that brought by streams out-flowing from under or in the ice, furnished a great quantity of sediment for deposit on the lake bottom. At the stream mouths huge deltas of gravel and sand were formed at each successive level of the lakes. These deltas are now conspicuous topographic landmarks as they project in well developed, steep-front and flat-topped terraces on the valley sides. After any one of the lowerings of the lake the stream would cut through the delta just formed and use this material in part to build the new, lower mass. Thus all the deltas are bisected by the later channel of the stream that built them. When the bottom of any one delta was reached, the stream found itself superimposed on the bed-rock and started the erosion of a rock gorge. Enough time has elapsed, since the complete disappearance of the ice barrier and the establishment of the present drainage levels, for the extension of the delta building, at the mouths of the various streams confluent at the head of Cayuga Lake, to join and completely fill in the end of the basin. Over this delta-filling later floodplain and alluvial deposits have been spread; and by this combination of processes the mile and a half long, level-topped Inlet Plain has been formed. On this plain the main part of the city of Ithaca has been built.

As early as 1656 white men, two Jesuit Fathers, entered the Ithaca region and dwelt among the Indians for some nine months. They departed because of anticipated difficulties with the natives

and it was not until 1668 that the mission was reëstablished and continued until 1684 at Cayuga, N. Y., on Lake Cayuga. In 1671-72 Father Raffeix was temporarily stationed there and wrote an account of the natural aspect of his "canton." From this it appears that while most of the country was forested the Indians had made considerable clearings, the larger ones being "oak openings" which were burnt over annually for hunting purposes, while smaller tracts near the villages were planted to corn. Apparently these rather extensive cleared areas were located almost entirely to the north of the line of the Portage escarpment. Over the dissected plateau area, from Ithaca south to the Susquehanna, the forest was practically unbroken, dense, and tangled, the "dark forest," according to the testimony of this and other early observers. [These accounts and other information in regard to the primitive flora of the region are summarized in "The Cayuga Flora," by W. R. Dudley, Bulletin of the Cornell University (Science) Vol. II, 1886.]

On the rolling, upland summits white pine predominated. In the valley bottoms at Ithaca, particularly near the head of the delta-floodplain the white pine merged into oak, elm and maple woods, though there were also extensive cleared fields, cultivated by the Indians, on this ground, together with apple orchards, this fruit apparently having been introduced by the Jesuits. The same type of forest continued northward along the shores of the lake and on the lower lands to the east of its

shore. The front of the delta was marsh land. Lake Cayuga was called "Tiohero" or the "lake of flags and rushes" by the Indians because of such growth at both its northern and southern ends. Extensive swamps were also present at all the water partings. In these divide swamps the tamarack, black spruce and balsam fir were native and still occur, as well as the hemlock; though the last is much more abundant in the region, and has its especial habitat, on the sides of the post-glacial gorges. The tamarack, spruce and balsam fir, as well as the wild primrose (Primula Mistassinica) which is found on the cold, wet, south walls of the gorges, are to be regarded as subarctic species which migrated from the north before the continental glacier and were left behind in such isolated, but congenial habitats on the retreat of the ice. Primula Mistassinica for example, now has its natural habitat about the shores of a lake of the same name on the Labrador peninsula. On the dry and sandy knolls of the dissected, high-level deltas other exceptional forms occur, as for instance, the pitch pine and the red or Norway pine. In these special instances the native flora shows interesting adaptations to its geographic environment.

Thus practically all the region (for the Indian clearings were largely to the north) had originally a dense forest cover. Of this comparatively little remains. Clumps of trees, farm woodlots, still dot the lower slopes and valley bottoms, and a ribbon of forest marks the course of each of the gorges. Larger tracts of woodland occupy the higher parts

of the uplands and the glacially over-steepened slopes of the through valleys to the south; and are also found on the swampy divide areas and over rough and stony morainic ground. Practically all of this is, however, second growth timber. As early as 1853 it was noted in a local pamphlet ["Ithaca As It Was," H. C. Goodwin, Ithaca, N. Y., 1853, p. 3.] that three-fourths of the county (Tompkins) was improved land. In 1886 the only virgin tract of white pine consisted of an area about forty acres in extent that occupied the hillocky moraine at the head of the Inlet Creek, and this has since been cleared. Much of this timber was undoubtedly converted into lumber. In 1832 the export of lumber from the county ["Facts Relative to the Trade, etc., of the County of Tompkins," Ithaca, N. Y., 1832, p. 7.] had an annual value of four hundred thousand dollars, but in the same year ashes brought twenty-seven thousand dollars, indicating that much timber (estimated at sixty per cent) was burnt in clearing land for agriculture. The ashes were used to make potash, an industry that began as early as 1804. ["Early History of Ithaca." H. King, Ithaca, N. Y., 1847, p. 13.] Latterly even the small timber on the steepened slopes and uplands is being cut and the land allowed to stand idle or used for pasture. Formerly the thick woods on the uplands held back the melting of the winter snows, now the water goes off very rapidly after spring first sets in. Much of the land now cleared ought to be replanted to forest. Neither the early or later clearing had much

reference to geographic conditions. Woodlots still occupy rich lowlands; barren hillsides too steep even for good pastures were cleared. About thirty years are required to regrow merchantable timber on land that has been cleared and as this is a long time investment it would be well to exempt such lands from taxation until the forest is cut. Land that would not sell for over fifteen dollars per acre as farm land produced nearly five dollars per acre, annually, in natural regrowth of timber without care, for the twenty-two years required to produce the forest. [An Agricultural Survey of (part) Tompkins Co., N. Y. Warren, G. F. and Livermore, K. C., et al. Bull. 295 Cornell Univ. Exp't Station, Ithaca, N. Y., 1911, p. 471.]

The primitive forest abounded in game. Deer were very plentiful, as were also bear; these animals supplied the early settlers with most of their meat. In 1789 the first trading was done by the Ithaca community and consisted of the exchange of maple-sugar and marten, otter, beaver, fox, bear and deer skins, for tea, coffee, crockery, hardware, lead, gunpowder and liquor. In 1823 it was still thought worth while to organize a "Grand Deer and Wolf Drive" because in the southern part of the county the "repose of the settler is disturbed by the midnight howl of the Wolf and yell of the Panther." On this occasion some eight hundred men, during two December days, closed in on a section of country about nineteen miles in circumference located some ten miles to the southwest of Ithaca around Newfield. No record seems to be available

as to the results of this hunt. By 1853 three-fourths of the area of the county was reported as improved land but in 1832 deer skins were still an article of considerable importance in the list of exports.

The average and extremes of temperature in the Ithaca region vary several degrees according to the exact locality, the chief factors of this difference being relative elevation and distance from Cayuga Lake. The average annual temperature at Ithaca (campus of the University) is 47° F., that for the six summer months being a trifle below 60° F. and for the winter months 33° F. In the upland-valleys, to the south and west the annual average temperature is 2° F. lower than at Ithaca, though the difference in altitude between the observing stations is only a little over one hundred feet. This relation holds, essentially, for all the months of the year, as it does also for the average difference in temperature between the two stations on the hottest days for a number of years. But the upland valley station record shows an average of 6° F. greater cold for the coldest days in a number of years. From this it would appear that the effect, on average temperatures, of greater elevation and remoteness from the lake is a slight annual lowering of the temperature, accentuated in winter extremes. The highest summer temperature officially recorded at Ithaca is 102° F., the lowest—20° F. This shows the climate to be one of great extremes in annual temperature and the range from day to day is also great; thus it extended over 30° F. in the eighteen

hours following midnight January 30, 1915. [These and other climatic data that follow are for the most part from: Climatic Summary for Ithaca, N. Y. Published Sept., 1914, Local Office U. S. Weather Bureau, Ithaca, N. Y., and: Frosts in New York, W. M. Wilson, Bulletin 316, Cornell University Agr. Exp't Station, Ithaca, N. Y., 1912.] The average temperature for the months when the university is in session, October to May, inclusive, is only slightly below 40° F. the optimum average temperature for mental activity as defined by Huntingdon. [Climate and Civilization, Huntingdon, E., Harpers Monthly, Vol. CXXX, Feb., 1915, p. 367.] Perhaps the students and faculty have not appreciated this favoring geographic influence but no doubt it has been exerting its due effect.

The influence of Lake Cayuga is particularly marked in connection with the length of the growing season as delimited by the last and first killing frosts. At Ithaca the average date of the last killing frost in spring is May 4th, and the first one in fall October 10th, giving a season of one hundred and fifty-nine days. In the upland valley station, previously referred to, the corresponding dates are May 18th and September 27th, hence a growing season of only one hundred and thirty-two days. This is almost a month's difference, and there is reason to believe that, in locations otherwise favorable and nearer to the lake than the Weather Bureau station at Ithaca, the season may be even longer. It may be noted, in comparison, that the growing season around New York City is two hundred days, at

Buffalo, N. Y., one hundred and seventy-four days, at Columbus, Ohio, one hundred and eighty-three days. In central New York State latitudes hillsides with southern exposure are warmest, next come those facing east, then west and last those looking to the north. From this it would appear that as Cayuga Lake extends north and south, a slope sheltered from the prevailing wind on the west side of the lake has a distinct advantage of location with regard to the duration of the growing season. This may be of more than usual importance in the Ithaca region because the locality lies within the belt of the average track of most of the cyclonic storms that pass over the northeastern United States. The resulting cloudiness reduces the amount of sunshine received at Ithaca to eight per cent less annually than that received at New York City (expressed in terms of the percentage of that possible in each place) and in April to twelve per cent less. Accordingly hours of sunshine count for more in Ithaca than in New York City, especially during the month of April at the beginning of the growing season. It further appears, on examination of the local weather station records, [Compiled at the suggestion of the writer by Mr. L. A. Hausman, instructor in Meteorology, Cornell University.] that during the five years, 1909-13, from four to ten hours more of early morning sunshine, than of late afternoon sunshine were received during each April. In May the reverse is the case. But as April is the critical month when the soil is being warmed up and growth started, it would seem that

the slopes that face the morning sun have the advantage in this also.

The reference to its position with regard to the average track of cyclonic storms will suggest that the Ithaca region is not deficient in rainfall. At Ithaca itself the average annual precipitation is thirty-four inches, at the upland valley station nearby it is thirty-eight inches; New York City has forty-five inches. While New York City has a greater rainfall, it is not so uniformly distributed as the Ithaca precipitation, Ithaca having one hundred and fifty-five days on the average annually with a precipitation of one-hundredth inch or more, while New York City has only one hundred and twenty-eight. However, New York City gets twenty-six inches during its growing season while Ithaca receives only seventeen. Even if the amount of precipitation received at Ithaca during the two months of New York's longer growing season are added, the total falls below New York City's; only twenty-two inches at Ithaca as compared to twenty-six inches at New York. As the soils of the Ithaca region have poor drainage conditions; are apt to be too wet in spring and too dry in summer it would appear that a higher summer rainfall would be of material benefit to the agriculture of the area. The annual snowfall averages fifty-six inches as compared to thirty-five inches at New York and forty-seven at Binghamton. This snowfall generally persists for considerable periods and affords good sledding, thus materially facilitates country hauling in winter.

The prevailing wind direction is from the northwest, thirty per cent of the time, followed by winds from the southeast for twenty-three per cent of the time.

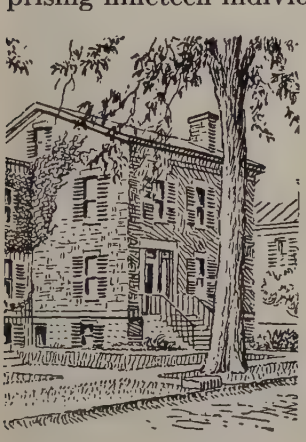
Several minor climatic influences may be noted here. Though possessed of romantic scenery, a lake, gorges, waterfalls and hills, and though readily accessible from several large centers of population the region has never had as great a vogue as a summer resort as might be expected, the primary reason being the cloudiness and coolness of the early summer months. This has made lakeside hotel ventures in general unprofitable as such enterprises go. Then, too, bathing is not good, partly because of the general absence of good beaches and the abrupt deepening of the water offshore, also because when a warm south wind blows the warm surface waters are drifted to the north end of the lake and the water is cold; while on days when the waters are warm, a north wind usually makes the air too cool for comfort. While the open reaches of the lake are admirable for sailing, sudden squalls are common because of air drainage coming down the hanging valleys and first striking the lake surface at a distance from the shore. Because of this phenomenonand because of all-year-round low temperature of the deeper waters of the lake, a number of drownings from upset sailboats and an even greater number from overturned canoes have occurred, and this record also adversely affects the popularity of the lakeside as a summer resort.

In September, 1779, detachments from General

Sullivan's army sent out by Washington to "Chastise and humble the Six Nations" utterly destroyed the Indian villages along Cayuga Lake and wasted the native plantations and orchards. One of these villages, Coreorgonel, consisting of twenty-five "elegantly built houses" was situated on the morainic hillocks that terminate the delta-floodplain area on the west side of the Inlet Creek. The Indians who occupied it were not of Iroquois stock, but Tutelos, originally inhabitants of the piedmont country of Virginia and the Carolinas. This is of interest in connection with the place names of the region for the Tutelos removed to this point in 1753 (after concluding a peace with the Iroquois who had long harried them) in company with an allied tribe, the Saponis, who had suffered like tribulations. The Saponis settled in one of the through valleys on the upland to the southwest of Ithaca and this today is called "Pony Hollow" a corruption of the original Saponi Hollow. [See Handbook of American Indians, Bulletin 30. Parts I and II, Bureau of American Ethnology, Smithsonian Institution 1907, 1910, for references to literature.] Although their settlements were destroyed and the Indians themselves driven toward Niagara in 1779, and although they had formally ceded their lands to the state in 1789, it seems that a considerable number of the natives remained in the Cayuga country for some years later, as they are mentioned in the accounts of the first white settlement of the region, 1788-90. Thus it is related that in winter the natives pitched their

wigwams on the level lands within the mouth of the interglacial Six Mile Creek gorge near State Street, securing rather complete protection from cold northwest storms under the steep and high rock walls. This is the area that has recently been made a city park by Ithaca. It is well adapted to such use because of its romantic scenery and the association of the place with the earliest aboriginal occupation of the region adds much to the interest of the park as a recreation center. With the advent of spring the Indians moved to higher ground, particularly to the site of the earlier town of Coreorgonel where there were native orchards. Thus it appears that geographic conditions exerted some influence on the habits of the Indian residents of the region.

In September, 1789, three white families, comprising nineteen individuals, removed from Kingston, N. Y., to the present site of Ithaca, bringing with them some household chattels. A month was consumed by this party in their journey from Kingston to Owego. Their route in the main followed geographic lines and is now paralleled for the most part by railways. From Kingston they went northwestward along a route that is now



AN OLD STONE HOUSE

followed by the Ulster & Delaware railway. Crossing the divide of the Catskills they arrived at the headquarters of the East Branch of the Delaware River, probably near the present village of Arkville. Here canoes were fashioned in which they floated down the Delaware River to a point a little below the junction of the East and West branches of that stream. This portion of the route is now followed by the Delaware & Northern railway and the New York, Ontario & Western road. From the Delaware they portaged across the divide between that stream and the Susquehanna at what was called its Great Bend near Lanesboro, Pa. No railroad crosses this divide just at this point but the Erie railroad makes the climb from the Delaware to the Susquehanna valley just a few miles farther north and continues westward in the valley of the Susquehanna River to Owego and beyond. At the Susquehanna the settlers once more constructed canoes and floated down stream to Owego. While modern traffic between the east and the west has abandoned the settlers' route in large part, it is nevertheless of geographic interest to note its directness and the extent to which the stream courses were utilized in making the trip.

Nineteen days more were needed to complete the last stage of the journey, the part from Owego to Ithaca, a distance of only twenty-nine miles. While an Indian trail, succinctly described as a well beaten path, marked the way between these points, it seems that the settlers secured horses and stock at Owego, presumably wagons also, conse-

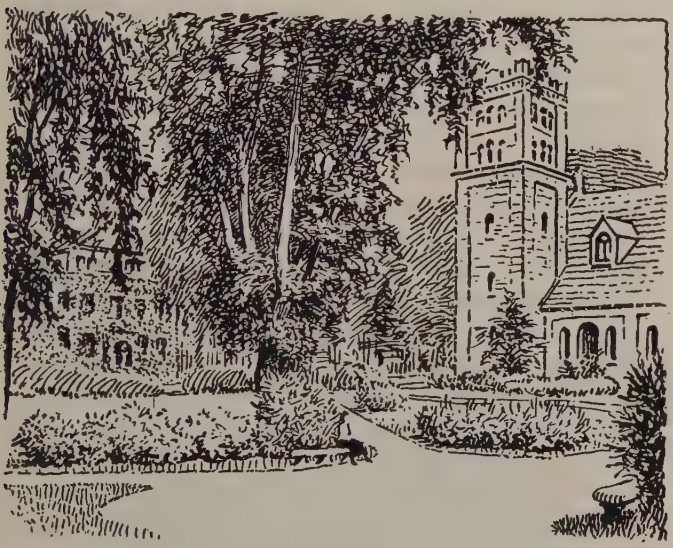
quently it was necessary for them to clear off the forest in advance of their march, hence the long time it took to cover the short distance. The highway they opened in this manner followed one of the lowlying gaps, across the upland country, due to glaciation, the through valley of Six Mile Creek, which was later destined to become an important factor in the development of the region.

Economic motives, a desire to improve their fortunes, led the settlers to emigrate. Purely geographic considerations, however, must have determined their choice of a new home. This is a nice distinction but one that may very fitly be made. It is also safe to assert that they would not have pushed on for twenty-nine miles from Owego so arduously without good reason. While in the through valley of Six Mile Creek there has been developed an ample acreage of cultivable lands, it must be remembered that primitively this section was densely forested while to the north the Indians had cleared large areas. But it was probably the wide expanse of almost perfectly level land on the delta-floodplain, at the head of Cayuga Lake, with its area of fertile, deep and well drained soil on its eastern side, in view of the rich and immediate agricutural returns these acres promised, that exercised the controlling influence in the choice of a site for settlement. Visions of a future populous town because of the location at the head of the lake and the abundant water-powers adjacent may also have had a bearing on the decision.

The immediate location of the first dwelling

places was guided by geographic conditions. Three large streams, Fall Creek, Cascadilla and Six Mile Creeks emerge from the rock gorges that terminate their hanging, upper valleys onto the lake-head plain on its east side; no stream of any size on the west side. Because of the abrupt change of grade at the ends of their gorges these three streams have built coalescing alluvial fans on the surface of the delta-floodplain, making the land higher and dryer on its eastern side and pushing the Inlet stream over to the base of the western bluff. Accordingly, as an early writer remarks, the exact location of the first cabin was determined "by the transporting power of Cascadilla Creek." At this point an Indian clearing existed and here, too, the first crops were planted. This first dwelling, moreover, was just to the north of the mouth of the gorge of Cascadilla, in which there were considerable waterfalls only a short distance up-stream. The immediate utility of such water-powers to the settlers is suggested by the fact that as early as the second year a flour mill, crude to be sure, but capable of grinding twenty-five bushels of grain per day was erected at the mouth of the Cascadilla gorge. In Six Mile the water-powers were farther up-stream, less accessible; the immediate mouth of Fall Creek seems to have been very swampy, but these streams, too, were put to work at an early date. It is interesting to note further that the business center of Ithaca has grown up on the tract of land between the Six Mile and Cascadilla Creek gorge-mouths that was first settled.

The young settlement early acquired the name of "Maricles Flats" or "The Flats" because of its environment. Its present name, Ithaca, was be-



IN DE WITT PARK

stowed on it in about 1808 by Simeon DeWitt, who in 1780 was appointed Chief Geographer of the Army of the Revolution, and in 1784 Surveyor General of New York State. While "The Flats" was not a very euphonious appellation, it did express a geographic relation, hence it seems unfortunate that this geographer, at least by one-time title, who later resided in the settlement, should not have chosen a pleasing geographic name rather than Ithaca. This name has, however, since the found-

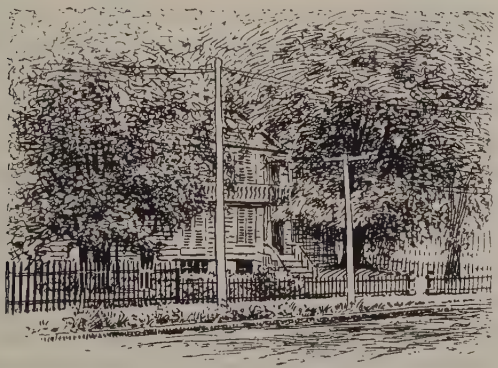
ing of the university, a degree of appropriateness he could not have foreseen. While DeWitt himself may not have been responsible for the many other classical place names found in this part of the state, it appears that this example of his served as a precedent.

The Jesuit missionaries, who were probably the first white men in the region, undoubtedly came by way of the St. Lawrence and Great Lakes route from the east, entered the northern end of Lake Cayuga and followed its extension southward in their explorations. The first merchant of the region, an itinerant trader, brought a small boat load of goods (tea, coffee, earthenware, dry goods, hardware, gunpowder, lead and liquor) up Cayuga Lake and exchanged these articles at Ithaca for fur and maple sugar. The very first settlers came by way of the north and south through-valley of Six Mile Creek from Owego on the Susquehanna River to the site of Ithaca at the head of Cayuga Lake. These facts suggest the early importance of the north-south lines of travel and communication in the region. It should be mentioned, however, that a considerable number of the early pioneers who settled at Ithaca came from the east along the course of Fall Creek and that it was along this route that the first road through the forest was cut, completed in 1795, connecting Oxford on the Chenango River with Ithaca. [Location of Towns and Cities of Central New York. Tarr, R. S. Bull. Amer. Geog. Soc. Vol. XLII, 1910, pp. 738-764.

Contains an admirable survey of this topic as

affecting the broader area in which the Ithaca Region is situated.]

In the first third of the nineteenth century water routes were considered all important. At an early date nearly every stream was utilized as a highway and with the opening of the Erie Canal in 1825 a further impetus was given to water transportation. Railroads were then considered useful primarily as a means to effect portage between water routes. From central New York the Susquehanna river was the great highway to the east until after the opening of the Erie Canal. When the Erie Canal was completed, and opened the way to



THE HOUSE OF MYSTERY

the west, it was felt that a north-south route connecting the canal highway to the west with the Susquehanna River route to the east would be of great importance. Ithaca, because of its geographic position at the lake-head terminal of western

navigation, on the shortest overland route to the Susquehanna, seemed destined to become a great commercial center. As early as 1810 Governor Clinton wrote, "The situation of this place (Ithaca) at the head of Cayuga Lake, and a short distance from the descending waters to the Atlantic, and about one hundred and twenty miles to the descending waters to the Mississippi, must render it a place of great importance." [Life and Writings of DeWitt Clinton, (The), W. W. Campbell, N. Y., 1849.]

For this prediction, and similar fond anticipations later, there was in those times ample justification; chiefly because the Ithaca region was then the originating point of a considerable bulk of export traffic that utilized the routes in question. Between 1808 and 1811 a turnpike or toll road was built over the Six Mile valley route. During the war of 1812 the supply of gypsum from Nova Scotia was cut off from the states and this fertilizer material was secured in large quantities along the east shore of Cayuga Lake to the north of Ithaca. On a single day (between 1812-15) it is recorded that as many as eight hundred teams passed over the Ithaca and Owego turnpike engaged in hauling the "plaister" (land plaster) to the Susquehanna River on which it was floated to the south and east. This commodity continued to be of importance in 1825 and the traffic in it is urged in 1862 as a reason for building a ship canal from the foot of Lake Cayuga to Lake Ontario. Salt was another mineral product shipped in quantity from Ithaca at an

early date, eight thousand barrels in 1825 and two thousand two hundred and fifty tons in 1832. ["Facts Relative to the Trade (etc.), of the County of Tompkins," N. Y. Pamphlet printed in 1832 by Mack and Andrus, Ithaca, N. Y., p. 7.] In the latter year nearly two thousand tons of lumber and eight thousand seven hundred tons of wheat and flour were sent out of the region. At that time most of this merchandise was being sent north and east through Cayuga Lake and the Erie Canal and it was estimated that this freight paid canal tolls to the amount of one hundred and fifty thousand dollars annually. At an earlier date (1810) Governor Clinton describes the shipment of flour from Ithaca to Baltimore, Montreal and New York. For Baltimore it was conveyed overland to Owego where "arks" (barges) could be had for seventy-five dollars. On these the flour was floated down the Susquehanna river, arriving at its destination in from eight to twelve days. At Baltimore the arks were sold for half price as "the rapids of the Susquehanna are fatal to ascending navigation." To Montreal the route was over the lake and the St. Lawrence River to the Canadian port. Montreal was considered the more certain market, expense of transportation being about the same to either Baltimore or Montreal. Goods were also shipped to and from New York City by way of Cayuga Lake, Seneca and Oneida Rivers, Oneida Lake and Wood Creek, by canal (completed 1797) across the divide between Wood Creek and the Mohawk River at Rome, down the Mohawk (canal around Little

Falls completed 1794) to Schenectady and from thence overland to the Hudson at Albany. It required six weeks to make the round trip from Ithaca to Schenectady with a boat carrying from one hundred to one hundred and fifty barrels of flour. The boats used were small and were propelled for the greater part of the way by poles.

In view of the slowness of such transportation, it is not surprising that the advent of the steamboat brought a decided stimulus to the lake traffic and seemed to emphasize further the coming importance of Ithaca as a terminal point on the shortest route from the east to the west. Passenger business, particularly, was affected. Thus, in The Ithaca Journal of June 7, 1820, it was stated that passengers from New York City for Buffalo could leave the former city at five p. m., go by boat to Newburgh, there take stage, and arrive at Ithaca on the evening of the second day. Embarking on the "Enterprise" (the Cayuga steamer) that evening, they would be landed at the foot of the lake next morning, and, resuming the stage, arrive at Buffalo that night, making the whole journey in three days, one day less than by way of Albany. By 1837 there were three steamboats and from seventy to one hundred canal-boats in service on Cayuga Lake. The latter were in large part engaged in conveying coal from Ithaca to the Erie Canal and this coal traffic was a very important factor in the apparent destiny of Ithaca as a great commercial center.

In about 1825 the importance of the coal de-

posits (principally anthracite) in the Pennsylvania district, directly to the south of Ithaca, began to be recognized. Iron ores, also, had been discovered and the huge traffic that promised to develop in these commodities gave a further incentive to the project of connecting the Erie Canal with the Susquehanna highway by some more adequate means of transportation than by wagon. It was proposed that the state should aid in the building of a canal over the divide between the lake head and river navigation and the Ithacans urged that this canal should follow one or the other of the two valleys leading south from their town as these were the shorter routes. ["Considerations of the Claims of the Southern Tier of Counties." "Addressed to the Representatives of an Intelligent Public." Pamphlet, Albany, N. Y., 1825.] There were, however, rival claimants for the route from the head of Seneca Lake, and it was in this valley that the north-south canal was dug, the Chemung Canal connecting the head of Seneca Lake with the Chemung River at Elmira, completed 1833.

There were good geographic reasons for selecting the Seneca-Chemung route as will appear later. Meanwhile the Ithacans and Owegans, undeterred by their failure to secure the canal, and retaining faith in the geographic advantage of their shorter route, organized a company and with private capital built a horse-power railroad through the Six Mile valley. While the Six Mile valley route is at least ten miles shorter than the Seneca-Chemung route to the Susquehanna, the geographic handicap

of the Six Mile route, that more than offset the advantage of less distance, became plainly manifest when the railroad was built. As the mouth of the valley is hanging above the Ithaca level (due to differential glacial erosion as detailed in an earlier paragraph) it was necessary to convey the cars down the steep slope from the hanging valley lip on an incline. The trains were hoisted and lowered by a system of pulleys and ropes, operated at first by horse-power and later by a stationary steam engine, through a vertical distance of four hundred and five feet within a horizontal distance of only one thousand seven hundred and thirty-three feet. The grade of this incline can still be seen on the nose of South Hill. It is interesting to note that the same cumbersome device was also employed on the Mohawk and Hudson Railroad, the earliest portion (1831) of the present New York Central system, to raise trains from Albany into the Mohawk valley. But, while the grade at Albany was readily overcome later, the modern railroad line (Owego Branch, D., L. & W. R. R.) that has succeeded the original Six Mile valley enterprise is at present able to descend to the Ithaca level only by a series of switchback spurs. Another road (E., C. & N. R. R.) built later in the same valley, does not even attempt to make the descent but discharges Ithaca freight and passengers at East Ithaca, a station on the level of the hanging valley lip.

The glacial through-valley south of Seneca Lake is not hanging, furthermore, its bottom is aggrad-

ed with morainic and out-wash material throughout its length. Hence, the cutting of the Chemung Canal through it was a comparatively easy task. The Chemung Canal had, too, the advantage of an adequate feeder in the Chemung River whose flow was in part diverted for the lockage down to the level of Seneca Lake. Then the divide at Horseheads is only nine hundred feet high and the level of Seneca Lake four hundred and forty-four feet, while the divide in the Six Mile valley has an altitude of nine hundred and eighty feet and the Cayuga Lake level is three hundred and eighty-four feet. The Seneca-Chemung route has, therefore, a lower divide and the rise from the lake level is much less. A canal in the Six Mile valley would have been a practical, if not a physical, impossibility. The horse-power railroad with the system of inclined planes was not an absolute failure, but it was not a real success, and within a few years the company went into bankruptcy.

When the citizens of Ithaca, Owego and Athens, in 1825, petitioned the legislatures of New York and Pennsylvania for state support for a canal to connect Ithaca with the Susquehanna, they proposed either the Six Mile route or a route through the Cayuga Inlet valley as preferable to the Seneca route. The Cayuga Inlet valley, like the valley south of Seneca Lake, is not hanging and its bottom is also aggraded throughout with glacial deposits. But the divide is at one thousand and forty feet, the distance from Ithaca to the Susquehanna at Athens greater than from Watkins to Elmira by

thirteen miles, and there is no large feeder available at the high level. Hence, the Seneca-Chemung route was chosen for the canal, but the Cayuga Inlet valley was made, later, the route of the Lehigh railroad, the only through line entering Ithaca. The passenger business of this road, between New York City and Buffalo, is now sent through Ithaca but the freight business is largely routed over the other loop of the road that parallels Seneca Lake. The reason for this discrimination is that leaving Ithaca, in either direction, involves a climb of four hundred and fifty feet or more, while between similar points on the Seneca Valley route the grades are only a little over one hundred feet. The railroad does not, however, descend to the level of Seneca Lake at its head, but like the E., C. & N. railroad in the Six Mile valley, discharges freight and passengers for Watkins on a hillside station above the Seneca lake-head town. The climb out of Ithaca to the north might have been almost entirely eliminated by following along the west shore of Cayuga Lake, but the road across the interlake country had been built before its incorporation into the Lehigh system, it already served a fertile farming country, it connected the towns built at the heads of the gorges and the advantages of the level route would have been more or less offset by the necessity of winding around the minor indentations of the shore. The branch Lehigh road built along the east shore of the lake suffers from the latter defect.

Another transportation project, by which the

Ithacans hoped to make their city a terminal point, was a direct ship canal to Lake Ontario, in order to get in touch with the western commerce and the Montreal market. Here they came into rivalry with the Oswegans whose route was shorter and better supplied with water. The Ithaca project, however, seemed likely of realization in 1829-35 and led to a fever of real estate speculation in the community which abruptly collapsed in the national panic of 1837. When first agitated, this canal was to be used in conjunction with the horse-power Six Mile valley railroad. In 1862 the project was revived with the idea that the water-powers from the hanging valleys could be used to grind western wheat and that Lake Superior copper ores could be smelted at Ithaca with anthracite coal brought over the Six Mile valley railroad from the Pennsylvania fields to the south. But coke from bituminous coal shortly supplanted the use of the costly anthracite for smelting and the wheat country moved still farther westward.

The Inlet harbor of Ithaca has been improved and made one of the southern terminals of the new Erie barge canal. It may be that this will give some impetus to water commerce on Cayuga Lake, centering at Ithaca, but it can not well do much. In the early days, when the Ithacans first anticipated great growth, their expectations were built primarily on the basis of the export tonnage of lumber, plaster, flour, wheat and salt originating in the territory. They also hoped to become the outlet for the Susquehanna country. The lumber

is gone, the plaster no longer in demand, as a great wheat raising section the region can not begin to compete successfully with the western lands, and salt is about the only one of the early bulk products still produced in quantity. The railroads have absorbed the Pennsylvania coal traffic and carry it over other routes. The Hudson-Mohawk gateway enabled New York City to surpass Baltimore and Philadelphia as seaports, hence the difficult grades of the more direct, cross-plateau routes make them of importance only in the coal carrying trade, and this does not affect Ithaca except in the matter of local consumption. If Ithaca ever becomes a commercial and shipping center of importance, it must be on the basis of development of resources within the immediate region. As these seem totally inadequate to bring about such a result, Ithaca can not hope to become, as it did once, "the great central city of New York State."

A number of geographic factors affect the agricultural conditions in the region, especially with reference to the kind of crops that have and can now be produced profitably. The origin of the soils, the topography of the region and its climate must all be taken into account.

The soils are, for the most part, of glacial origin, rock material fined by glacial grinding, but much of it has been reassorted and redeposited by water action. The uplands, above the level of one thousand feet, are quite uniformly covered with glacial till. As the bed-rock is mostly shale and sandstone, the former predominating, the till material con-

sists of commingled shale fragments of small size with clayey and sandy, fine particles making up the bulk of the mass. The substratum is often very dense and hard, the soil itself is usually thin, deficient in lime content and poorly drained. The shallowness is due to the comparatively light load of material transported by the ice in the thinner masses that moved over the uplands and their rapid melting off; the low lime content to the shaly bedrock from which it was derived and the poor drainage to the compaction of the material by the weight of the ice and to the fact that its clayey nature lends itself to puddling. These soils are the famous Volusia series, the worn-out condition of which has been held in part responsible for the decline of farming in central New York. The upland country to the south of Ithaca has, in fact, been described as an abandoned farm district.

The characterization as an abandoned farm district rests on the evidence of decrease in rural population and the number of unoccupied houses. For these facts the nature and condition of the soils are not wholly responsible. There are no abandoned farms in the sense of abandonment of title. The decrease in population and the resultant vacant houses are primarily the result of the introduction of machinery in farm operations, and it has been shown by a detailed survey [An Agricultural Survey of (part of) Tompkins County, New York. Warren, G. F. and Livermore, K. C. Cornell University Agricultural Experiment Station, Bulletin 295, March, 1911.] that the larger farms

that have come from this change in methods are uniformly more profitable than small units. The region was settled in the days of the scythe and grain cradle. Hill slopes, too steep for modern cultivation, were then cleared and farmed. These now are waste land or used only for pasture. As noted in an earlier paragraph, they should be returned to forest before the soil is all washed down.

In the days of early settlement, much of this land, as well as that at lower levels, was planted to wheat, as is evident from the export figures quoted. Now only five per cent of the total acreage in the townships surveyed in detail is devoted to this crop. Probably the depletion of the organic matter originally present in the soil, due to continuous cropping, is in part responsible for the decrease. Another reason for the decline of the wheat crop was the appearance of insect enemies. But what wheat is now raised gives a better yield per acre than the average for the wheat-growing states of the west. Hay is, however, now the universal crop, covers fifty-six per cent of the acreage, buckwheat eight per cent and potatoes three per cent. Topography and climate conditions are also, in part, responsible for the decline in farming on the uplands. With the advent of railroads, shipping points were almost all concentrated in the north and south through-valleys the levels of which are from five hundred to one thousand five hundred feet below the hill farms. The glacial over-deepening of the valley troughs made very steep slopes; hence all the descent is

accomplished in a very short distance. Roads, moreover, were laid out at an early date without reference to the valley stations, therefore often lead straight up hill for from four hundred to eight hundred feet just beyond the railroad. Because of such grades, bulk crops, potatoes for example, to which the soil is adapted, can not be very profitably produced. This topographic difficulty must also be contended with in hauling market milk. Climatic limitations are imposed by the shortness of the season and the coolness of summer, which makes the growing of corn for grain uncertain. The normal climatic sequence for the region, a wet spring, followed by a dry summer, is a particularly unhappy combination for the thin clayey upland soils. They are boggy and cold in spring-planting time, ploughing tends to puddle them and then in the summer droughts they dry out and bake, partly because they are thin and partly because the puddled condition prevents the vertical rise of water.

In addition to the handicap of the hills in hauling milk to market, there is a further disadvantage in that the average farm is over three miles from the valley station. How important a factor distance is may be appreciated when it is stated that a farmer within three miles of a market can make a labor income four times as large as that of the farmer seven miles or more away. Despite these difficulties, a large proportion of the farm incomes are derived from cattle production; forty per cent of the total farm receipts, of which thirty-three per

cent is from milk and butter and seven per cent from stock sold. This is due to the fact that a combination of milk and crops for sale pays better than the exclusive production of either the one or other, because labor can be kept more continuously employed. From the geographer's point of view, it would seem that sheep could be profitably produced on the steep slopes. But the land values are apparently too high for successful sheep raising.

In the valley bottoms and on the slopes of the north-south valleys, below the thousand foot level, as well as over the plain to the north of the Portage escarpment, a wide diversity of soils exists. These have essentially the same bed-rock origin as the upland soils but consist of mingled, morainic accumulations, glacial outwash gravels and sands and clay, and delta deposits of sand and gravel made on the bottoms of the proglacial lakes. In contrast with the hill soils, these soils are usually deep, for the wash of material from over and under the melting, glacial front tended

CITY HALL, ITHACA

to concentrate the deposit of its morainic load around the margins of the projecting valley lobes. Because of this greater thickness, the valley soils are free from the poor drainage conditions and drying out exhibited by the thin, upland soils. The partial or complete water assortment of the material has resulted in better textural conditions and their diversity permits of a wider variety of crops. Thus, apple orchards and vegetable gardens succeed on the well drained, lighter soils. On the whole, however, the crops are much the same as on the uplands but with better yields and greater profit to the farmer. Only one or two crops deserve special notice.

Grapes are produced, to a limited extent, on the east-facing slopes just above the level of Cayuga Lake. The soil conditions are essentially the same on the other side of the lake but there few or no vineyards are found. This seems to be a response to more genial climatic conditions on the west side, and is especially interesting in connection with the statistics of an excess of morning sun in April, given in an earlier paragraph. The dry alluvial farms that were cultivated by the first settlers on "The Flats" and planted to corn and potatoes are now almost wholly occupied by the city of Ithaca. On the west side of the Inlet, near the edge of the delta, a part of the originally swampy land has been filled in with dredged material secured in enlarging the stream to barge canal depth and width. This filled land has been planted in large part to peach orchard. This is

an interesting experiment, as peaches often fail in the region on account of frosts. In such close proximity to the lake the equalizing influence of the waters may be sufficient to make the crop reasonably certain.

The early industries of the region were nearly all founded on the water-powers furnished by Fall, Cascadilla and Six Mile Creeks in plunging through the post-glacial gorges to the lake level from their hanging valley lips. In the aggregate the volume of these powers is considerable. Fall and Cascadilla Creeks descend some four hundred feet within a distance of one-half mile. Because of the early development of these powers and the parcelling out of the rights to numerous individuals it has, however, to date been impossible to utilize the full head provided by the abrupt descent of these streams. With a single hydro-electric power plant and distributing station located at the foot of the gorge of Fall Creek, supplied by the full volume of the stream, a much greater amount of power could be secured than is now or has been. The same thing can be said of Cascadilla. But even in this event at least two separate power plants would be required. In other words it is a geographic disadvantage that the drainage of the comparatively small area that centers at Ithaca should be divided among three streams. The disadvantage does not stop at the power plants. To utilize the fall effectively a large reservoir is needed in the upper valley of each stream, particularly now that the forest has been removed and their volume fluctuates from floods

in spring and fall to mere threads of water in summer. The sites for such reservoirs are, however, available and steps are now being taken to develop the Fall Creek power in an adequate way.

Even with such development it is doubtful whether the available power from these streams would be sufficient to supply a considerable industrial center as was anticipated in 1835, when, during the period of speculation that preceded the contemplated construction of a ship canal from the foot of Cayuga Lake to Lake Ontario, the sum of two hundred and twenty thousand dollars was paid for only a portion ("sundry water-powers") of the Fall Creek power rights. On the scale that manufacturing enterprises were then conducted this price might possibly have proved a profitable investment if raw materials for conversion into finished products had flowed into Ithaca from the outside as was anticipated.

AN HISTORIC HOUSE, ITHACA

The dependence of the early mills and factories on the water-powers is indicated very clearly by the way they were all scattered along the stream courses. Their nature indicates that they were also dependent on local supplies of raw material to a very large extent. Grist mills came first, then plaster mills; chair, sash and door

factories using the local lumber supply, also saw mills; boat yards, building canal-boats; a distillery (local corn) tanneries, probably dependent at first on the nearby supply of hides but later utilizing only the regional resources of bark, oak and hemlock; oil mills (local flax seed?) and a paper-mill probably dependent on local supplies of rags. At early dates, however, there were numerous textile enterprises, woolen carding and fulling mills, cotton factories and silk mills which must have received their supplies of raw material from other regions and depended for success on the utilization of the local water-powers or cheap labor. A foundry and furnace for iron smelting was established in 1822, by 1834 there were three such enterprises in Ithaca.

It is significant that but few of these industries have survived. Those which were justified geographically in that they were founded on the supply of local raw materials and local demand were eminently prosperous in their day. The others, in almost every instance, had ill-starred and short careers.

The output of the local factories today consists of very specialized products of high value as compared to their bulk, are furthermore largely the creations of local inventive talent and mechanical skill. This is quite fitting in view of the modern topographic remoteness of Ithaca from centers of population, routes of commerce and supplies of bulk raw materials. A factory making a chain drive for automobiles, a shot gun works, a toy-organ company, a paper-mill specializing in waxed

papers, an advertising sign plant and an aeroplane company are now the important industries of the place. The last mentioned concern was attracted to Ithaca, on their own statement, by the geographic advantages of the site; in that the level, unoccupied lands of the delta flat and the open expanse of the lake, gave opportunities for starting and alighting safely and in trying out hydroplanes. Very recently, too, motion picture companies have established a studio on the lake shore. These enterprises utilize to the fullest possible extent the manifold scenic attractions of the Ithaca region and have probably done more than any other agency to bring Ithacans to a realization of the natural beauty of their locality.

Two industries making bulk products still exist. These avail themselves of abundant supplies of local raw material, of the facilities for cheap water transportation (which will be much enhanced by the barge canal) and of the exceptionally favorable conditions of location for the manufacture of their respective materials that the region affords. They are the salt plants and the cement plant situated on the east side of the lake near Ithaca.

In earlier years salt was made in the northern part of the state by evaporating the brine flowing from natural springs. Now double tube wells are sunk at Ithaca almost two thousand feet to the salt beds themselves which aggregate three hundred feet in thickness. Water sent down one tube issues from the other as a saturated salt solution, and is conveyed to settling tanks on the steep hill-

slope. After precipitation of gypsum and other impurities the concentrated brine is evaporated with artificial heat, the salt dried centrifugally and accumulated on the floor of a storehouse at lake level, whence it is readily shipped either by water or on the railway that parallels the shore line. During the year 1917 a mine shaft was sunk to the salt beds and it may be possible in the future to produce coarse rock salt at a point a few miles down the lake from Ithaca. This will provide a further large quantity of bulk material for shipment by water over the lake and barge canal to centers of population east and west.

The cement plant is a conspicuous example of the positive influence of a combination of favoring geographic factors in conducing to the prosperity of a particular enterprise, otherwise handicapped. The margin of profit in the cement industry is relatively small, the capitalization required per ton of actual product is the same as that in the pig iron industry, but the finished iron product has a value from three to four times greater than that of the same amount of cement. [Eckel, E. C., A Comparison of the Iron and Cement Industries, Cement Age, March, 1911, pp. 139-143; also The Cement and Iron Industries, a Comparative Study, Eng. Mag. March, 1911, pp. 854-867.] The tremendous modern use of cement has made possible large scale production in plants of maximum industrial efficiency. The Cayuga plant is comparatively distant from the large centers of consumption but has other advantages that outweigh this handicap.

Its supply of raw material is furnished by the Tully limestone and the Hamilton shale which underlies the limestone. At the exact site of the plant the rocks have been folded into a low arch which has resisted erosion because of the durable limestone formation that caps it. The glacial erosion of the north-south, Cayuga Lake trough has created a steep slope from the lake shore to the crest of the arch, which is just behind the mill at an altitude of two hundred and fifty-nine feet above the lake level. Glacial erosion has removed practically all the weathered rock material, and the practically complete absence of residual clay, in joint and bedding-planes, renders unnecessary the washing operation to remove such substance that must be adopted in some cement quarries of the United States that are located outside the zone of notable glacial erosion. The limestone is eighteen feet thick at the quarry, thus of ample bulk for large scale production. As much larger quantities of limestone are needed than of the Hamilton shale at its base (into which it passes abruptly) it is of considerable significance that the shale is below, for, if it were above, the cost of its removal or timbering would make the enterprise much less profitable. The steep slope and the amount of elevation above lake level make possible the use of an aerial tramway to carry the rock directly from the quarry face to the upper story of the mill, for grinding, without expenditure of power.

This series of geographic advantages have made possible the profitable operation of a small cement

mill in competition with much larger plants less favorably situated, but possessing more up-to-date equipment. The geographic disadvantage of being comparatively remote from centers of consumption, Buffalo on the west and New York on the east, is offset in large part by the availability of a water transportation route to those points. Without these geographic advantages the plant could not have survived, possessing them it has attracted the attention of a large corporation which proposes to develop it from a local enterprise to an industry of state wide importance.

The dominating factor in the development of modern Ithaca as a residential center has been the selection of the place as the site of Cornell University. The founder, Ezra Cornell, was indifferent to the honor of having his name attached to the institution but was insistent on the site at Ithaca in preference to Syracuse where it was urged that the university should be located. In this he was amply justified if beauty and natural interest of situation count for anything in the placing of an institution of learning.

The campus occupies the interstream plateau between Fall Creek and Cascadilla Creek. This is of ample dimensions to accommodate the university buildings and grounds and to provide also on the east the farm acreage necessary for the Agricultural College experimental plantings. It is a rather adventitious geographic advantage that this limited area of farm land should have very diversified soils, till, moraine, glacial lake sands, silt and

clay and delta material, giving opportunity for tests under a variety of soil conditions. The flat tops of the delta terraces that flank each of the boundary creeks have also provided admirable sites for a number of the buildings.

The west edge of the quadrangle is just above the over-steepened slope of the glacially-eroded Cayuga Lake valley, hence commands a view of the country for miles around. To the north one looks over a long expanse of lake; to the west down on the city in the valley below, and across it on a wide extent of field and woodland-chequered hillside. On the southeast the prospect is even more distant and extends far into the bold and rugged topography of the uplands. It is commonly felt that no inconsiderable fraction of the institution's cultural and educational influence is owing to its æsthetic surroundings, and the site is considered by many to be the most attractive of all the seats of higher learning in America. To this scenic attractiveness must also be added the unique opportunities for natural history studies, including geography, that the complicated physiographic development of the region affords, and which entails the existence of extremely varied habitats for both flora and fauna, making it, in consequence, a very exceptionally rich and compact collecting ground for the botanist and zoölogist; as was early remarked by the celebrated naturalist, Louis Agassiz.

Itself admirably situated, the university, as stated before, is responsible also for the modern

growth of Ithaca as a residential center. This dates from about the time when the city's dreams of future commercial greatness had been finally dissipated. Since then the interests of the population have been divided between the business district on the valley flat and the campus at the crest

AN EARLY COLONIAL HOME, ITHACA

of the over-steepened slope, separated primarily by a difference in altitude of some four hundred feet. The result has been the development of a hillside town in a place where there was ample room for residential growth on comparatively level lands to the south and west. Practically all the hillslope between Fall and Six Mile Creeks is covered with residences. The actual distance from the campus

Old Colonial Homes in Ithaca

THE CLINTON HOUSE

Exterior erected in the early days of Ithaca, then known as the finest hotel between New York and Buffalo

THE NEW ITHACA HIGH SCHOOL

to the business center of the city is short, but the direct down hill streets are so steep as to be exceedingly tiresome to climb and dangerous to descend in winter when there is an ice and snow cover. This steepness has also made the transportation problem difficult. The grades are too heavy for trolley lines to negotiate directly. Hence circuitous routes are necessary, with diagonal ascents of the slopes. Even under those conditions the motors must be geared very low, high rates of speed are impossible. The combination of roundabout routes and low speeds make anything like rapid transit from the valley to the campus out of the question. Moreover, even with their long routes the trolleys do not serve a wide area. The upshot of this, in connection with the utilization of practically all the plateau area by the university, is that the extent of available residential tracts is quite limited. Conservation of time and energy necessitates living at some place convenient to both the town and the campus for a large part of the community. These circumstances, conjointly, have developed the condition of high prices for lands, and exceedingly high rents for apartments in what is in other respects a village residential center.

With the increasing use of motor cars, and with the promised extension of the trolley lines an admirable solution of this difficulty has, however, been found, for that part of the community that has its chief interest or business in the university's activities, by the incorporation and development of

the Village of Cayuga Heights. This thriving and most attractive suburb occupies a portion of the valley slope of Cayuga Lake about one-half mile to the north of the campus. Being outside the city it is immune from the very heavy tax rate levied on Ithaca property. This saving, and the exceedingly fine views of both the lake and valley that Cayuga Heights residents enjoy, probably more than compensate for this suburb's greater distance from the business center than that of the other residential districts. The village is, moreover, admirably laid out, and many fine sites are still available for future growth. The hillside site has made the matter of fire protection a difficult problem which is further aggravated by the fact that most of the apparatus is housed in the valley, because the university is exempt from taxation. Modern, motor fire trucks have, however, done much to overcome this difficulty.

The water supply, too, was for a long time inadequate but by availing itself recently, on a proper scale, of the really excellent opportunity afforded by the geographic conditions for creating a sufficient reservoir, the community has solved the water problem. It will be recalled that the characteristic features of the bottoms of the hanging valleys, just above their lips, are a succession of amphitheatres, and connecting rock gorges, developed as the streams flow in and out of their earlier interglacial courses. One of these gorges in Six Mile Creek has been closed by a high dam, and the amphitheatre in the interglacial gorge

above it flooded, providing an ample reservoir at low cost. Moreover, as the drainage area of the upper section of the creek is comparatively small, it can be guarded conveniently against contamination. At an earlier date much of the water supply was secured from artesian wells and such water is

A "MOVIE" THEATRE IN ITHACA

now used to some extent for making artificial ice. Owing to an unwillingness to recognize the local origin of these artesian waters they were overdeveloped in an attempt to supply the whole community with them.

It is comparatively simple to recount and point out the geographic influences that have and are contemporaneously exerting an effect on the individual and collective fortunes of a community. To predict what conditions will be important in the future or to suggest better utilization of resources at hand is more difficult and open to criticism as

opinions may differ. But such efforts constitute a phase of applied geography and one that has been much neglected, hence is deserving of some exposition in this connection even though unskilful.

The transportation prospect of the future for the region is the maximum utilization of the Ithaca terminal of the barge canal. It is extremely likely that the salt and cement companies will avail themselves of this to a very large extent in shipping goods both east and west. Water transportation is so much cheaper than railroad transportation that if the cargoes were available there could be no question of the barge canal being profitable. Bulk cargoes other than salt and cement would need to be furnished largely by agricultural and lumber products. It might be feasible also to maintain a passenger steamer plying the length of the lake if by arranging circular tours out of New York City by way of Ithaca, Cayuga Lake, Niagara Falls, Lake Ontario, the St. Lawrence, Lake Champlain, Lake George and the Hudson River, enough tourists could be attracted to visit the Finger Lake country. Such a steamer would need to be fast and commodious to be successful.

The development of the agricultural bulk products would necessitate providing roads to the upland sections with low enough grades for the operation of tractors capable of hauling a string of wagons to the lake terminal. It would also need co-operation among the farmers to provide an adequate quantity of marketable products. But potatoes, apples (properly graded and packed) and

beef cattle in view of rising meat prices could be shipped, and are all adapted to production in quantity in the region. With proper reforestation of the hillslopes and summits there would also be a constantly increasing supply of valuable pine lumber to send out. For return cargoes western corn for cattle fattening and perhaps bituminous coal and coke from Lake Erie ports could be secured.

Industrial expansion ought to be largely along the line of specialized manufactures, requiring intelligent labor, such as are now successfully established at Ithaca. The presence of the University would provide an incentive for the removal of skilled artisans to an inland center. Other salt and cement companies might find it profitable to establish plants. An increasing volume of high value, small bulk products would compensate the railroads, at least in part, for any loss in traffic on account of barge canal shipments. The consolidation of the water-powers of both Fall Creek and Cascadilla Creek by reservoirs and central converting plants would be of great industrial advantage. Any additional development of industrial or commercial activity will, of course, bring about growth in population. This is eminently desirable and will react favorably on the university's interests, for it is extremely unlikely that such growth will ever keep pace with the university's expansion and consequent dominance of the situation. In closing, therefore, it may not be amiss to recommend to such readers of these lines that may be in search

of a home site where the leisure of ample means may be made enjoyable by both physical and intellectual stimulus, that the Ithaca-Cornell region affords these with its beautiful scenery, really fine autumn climate, with access to innumerable concerts, plays and lectures of metropolitan standard, combined with the pleasure of living in a cultured community. For a family with children to educate the location is almost ideal, for the elementary and secondary schools of Ithaca are of exceptionally high grade, and, combined with the facilities for higher education provided by the university, meet all demands for the training of any generation in any field. And the advertising slogan of the community is "Ithaca Invites You."

CHAPTER X

OVER HILL AND INTO HOLLOW

THE great panorama of nature that is spread before the newcomer's eyes from the vantage point of the Cornell campus is only a formal and distant introduction to the scenic charm of the environment. The grandeur of the initial prospect, with its wide expanses of hillslope, its restful valley aspect and the blue lure of the lake waters, only suggests the infinite variety of scenic interest that remains concealed. To know these hidden things intimately calls for something of the ardor of the explorer. For such an enthusiast there are gorges and waterfalls almost without number to be sought out, rambles by purling brooks slipping from field into forest, and unexpected glimpses of shimmering lakes and peaceful country villages to be had from lonely hilltops. It is not a region of rugged and awe-inspiring mountain splendor but of the kind that pleases and soothes from the motor road, yet holds enough of the wilderness aspect in its remoter places to gratify the discovering instinct of the tramper.

It is not claimed that this scenic attractiveness is a resource peculiar to the immediate environment of the university. It is shared by all the Finger Lakes country of Central New York and the wonder is, that, altogether aside from the fact that Cornell is located in the area, the region is not more favorably known and more commonly visited

by the tourist public. It would be difficult to conceive a district holding in store more of quiet beauty and romantic wildness than this. In the past the relative inaccessibility by rail may have had something to do with its not becoming celebrated, but with the modern vogue for motor-touring, and the completion of excellent state roads, there can be little doubt but that the Finger Lake country will be more and more the resort of

those who plan their trips with discrimination. On the other hand, it is true that Ithaca and Cornell are central to some of the finest features of the general region, and on that account this chapter is inserted. These paragraphs and pictures may serve to acquaint some readers with the possibilities of the environment or perhaps to incite the incoming undergraduate with an immediate desire to seek out the places mentioned. In either event they will be of good purpose.

With past experience as guide, there is at once a great temptation to go far afield, to strike out, immediately, away from the beaten track. That would be a mistake for the newcomer at Ithaca and Cornell. The city itself has recently begun to recognize this fact, the concrete evidence being that a City Park has been made of the Six Mile Creek gorge for that part of its extent that parallels the main street of the town. Within a few blocks of the principal hotels one can descend into a rock-walled chasm, and, following along paths that lead through clumps of woodland, into open glades, to the foot of foaming falls, and along steep ledges, find enough of sylvan beauty to while away an afternoon most agreeably.

INSPIRATION POINT

If the hour is not too late, the trolley ride "around the loop," with perhaps a stop at "Inspiration Point" will afford

a delightful relaxation from the earlier walk and an added scenic gratification. Near the summit of its winding ascent, from the valley bottom to the campus plateau, the trolley route along a considerable distance affords the passenger an outlook directly down on the city and for miles up the lake. This makes an especially pleasing prospect, one of which even the old inhabitant does not tire; a ride around the loop is quite an institution among the good citizens of Ithaca.

Immediately adjacent to the campus, at its south entrance from College Avenue, there is a pretty path among the hemlocks bordering the upper length of Cascadilla Gorge. This was a favorite retreat of Goldwin Smith, during the two years that he spent at Cornell, hence is known as Goldwin Smith Walk. On the far side of the campus, along Beebe Lake and Fall Creek Gorge, is a similar path leading to Forest Home village. Both of these walks are of romantic aspect, the first affording intimate glimpses of rushing water in a narrow rock gorge; the latter opening out wider views over the placid waters of the little lake with its forest-covered slope opposite—especially beautiful in autumn.

From the upper bridge across Fall Creek, on the north side of the campus, one can look down into the tremendously deep lower gorge. Just at this point, so the story runs, as told by Griffis in his "Pathfinders of the Revolution," a white maiden, made captive by the Seneca Indians at the Cherry Valley massacre, was found and rescued by her

lover, a member of General Sullivan's expedition. It seems that the maiden had been able to send a letter back to her white friends by a negro captive whom the Indians regarded as a trusty. In this letter she described a hiding place that she had discovered, near a great waterfall, in a gorge at the south end of Cayuga Lake, a place to which she proposed to flee if ever a punitive expedition should be sent into the lake country. The exact locality she fixed as the point where a little primrose, not found elsewhere in the region, flourished on the

IN UPPER FALL CREEK GORGE

gorge walls, and of this flower she enclosed pressed specimens. Fortunately for the success of her plan the Indians departed several days before the white troops came into the Cayuga region, the maiden was able to elude them, and to attain her retreat;

where, after an anxious search, her lover eventually discovered her; the little primrose playing its romantic part just as she had planned. The great waterfall of her letter, however, is now identified by the quite unromantic name of Triphammer Falls.

Just below the bridge, on the south side, is a path by which one may descend to the bottom of the gorge and, if the water is not too high, follow its course, dry shod, to another large falls just above the suspension bridge. Below this falls is a great pool that in recent years has been a favorite swimming place for the Summer Session students. This pool presents a quite animated appearance on a hot July afternoon, when a hundred or more bathers and divers may be disporting themselves at the same hour.

Farther down the gorge is the lower trolley bridge, from the side of which the brink of the Ithaca Falls is visible, as is also the entrance to the famous tunnel constructed by Ezra Cornell. The more adventurous may find the lower end of this tunnel and thus gain entrance for an exploration of its length. It will then be noted that the roof of the tunnel is formed by a durable stratum of sandstone, while the passage itself is cut through friable shales. It remained, however, for Ezra Cornell to see how feasible and economical this relation of the rock strata made such an engineering project, and also to carry out the plan.

From the brink of the rock wall, above the Ithaca Falls, Cayuga Lake is once more visible and invites a voyage on its waters. If one yields to its

lure, bear this warning in mind (the only lines in this volume printed in black face type): **Do not venture on Cayuga Lake in any craft that is liable to upset from its own crankiness, from waves or wind, unless you are willing to wear a life-preserver that will support your inert body indefinitely.** It will not avail that you are a strong swimmer, the open waters of Cayuga are almost icy cold the year round and soon numb the efforts of the most hardy. Hence almost every year is marred by one or more tragic drownings.

CAYUGA LAKE FROM RENWICK PIER

In summer, daily steamboat service is available to points on the western side of the lake near Ithaca, occasionally an excursion trip is made to its northern end. On a bright, warm day either the short trip or the long trip is extremely enjoyable, especially if a stop for dinner is made at Glenwood Point or at one of the other hotels along

the shore. From Glenwood one has a very impressive view of the university buildings crowning the heights above the town.

But the main objective of a trip down Cayuga is the Taughannock Gorge and Falls. If the steamer service is not available to its lower end, the gorge may also be reached by rail or road at its head. For those who love a scramble, however, the climb up the gorge from its lower end is much the better way to get a proper conception of its phenomena.

The beginning of the gorge, down stream, is marked by a very pretty, though low, waterfall over the Tully limestone. Just above this point the black cliffs of the Genesee shale begin to rise on each side and shortly attain really grand aspects. Canyons in the western plateau districts of the United States present sheer cliffs of much greater height, but the Taughannock development, occurring in what is, in general, a placid agricultural country, gains in impressiveness by this contrast with the normal scenic aspect of the region.

Although the gorge is of considerable width, the stream, flowing from side to side over its bottom, forces the path at times to slippery ledges, so that the climb up the mile or more of distance to the foot of the big falls is not without its minor thrills. For most of the way the gorge sides are forested but, at its head, the site of the falls is marked by a great open pit, where overhanging rock walls rise on either hand, bare and black, to

the plateau level some three hundred to four hundred feet above. Into this plateau level a smaller, upper gorge has been cut by the stream, and from the end of this upper gorge the waters plunge in a vertical fall of some two hundred and fifteen feet, or about forty-five feet "higher'n Niagara" in local phraseology. To get a vivid sensation of the actual scale of the place it is necessary to approach the foot of the fall quite closely and then look up. Thus the observer becomes aware of the insignificance of his own stature and the cliffs take on menacing proportions. But the falls themselves are lovely, and in a different way from that of other cascades in the region because of their straight descent. Seen from above, framed by the forest greenery, they make a notable picture.

Three other gorges deserve especial mention: Buttermilk, Enfield and Watkins. The first two were purchased and made accessible to the sightseer by a public-spirited citizen of Ithaca—Mr. R. H. Treman, and he later presented Enfield to the state for a state park, which Watkins has been for sometime. All three are easily reached by motor, over fine state roads, at distances of approximately, three, seven and twenty-five miles, respectively. Buttermilk can be explored in the course of an afternoon's tramp from Ithaca, it is sylvan-dell like in its several reaches and contains many interesting pot-hole cauldrons. Enfield is the wildest of the gorges in the region, its pristine conditions are practically untouched, it, no doubt, will best please the romantic nature lover. The

exceedingly straight chutes, with sides determined by joints in the bed-rock, of the upper gorge, are a very unusual feature in gorge scenery; and the view from the great Lucifer Falls, a vantage point that can be attained with perfect safety by those who are not made dizzy by great heights, is of exceptionally impressive sweep. Watkins Glen, with its concrete walks and iron railings, gives opportunity to view typical gorge scenery of the Finger Lake country to those who from age or infirmity are not equal to the task of scrambling through the less improved occurrences. The peculiar feature of the Watkins Glen is that the water channel, in characteristic stretches, is confined to narrow, spiral grooves, and these in turn are quite uniquely fluted.

It will be noted that each of the gorges has features not duplicated in the others, and that is a hint of the further resources of this kind that the region holds in store for the enthusiastic tramper, who may wish to find places less generally known than those cited. Practically every stream of the region, in descending to any one of the lake levels, flows through one or more rock glens. Merely as a suggestion along this line Lick Brook, Coy Glen and the headwaters of Six Mile Creek may be named as worthy of the beginning efforts in a systematic searching out of such places. It may also be hinted that some of these streams yield fine catches of trout to the competent fisherman, to say more would be telling.

Only a few miles distant from the campus are

Taughannock Falls

In Enfield Glen

two quite prominent hill summits, Hungerford Hill to the southeast, and Turkey Hill to the east. Both these afford magnificent views of the country to the north, including the university site and the lake basin. Farther afield, to the south, are other still greater heights that will afford recompense for more ambitious climbs in the wider prospects over hill and valley that are opened up from their summits. On such slopes, too, the arbutus blooms in early spring and, at the end of June, at particular spots, the laurel provides a very riot of beautiful blossoms.

For those who do not wish to indulge in the cross-country tramping that hilltop objectives entail, smooth going is available to a number of points of considerable interest that also have the merit of providing a pleasant outlook all along the way. Perhaps the finest is the walk across Cornell Heights suburb and the Cayuga Heights Village residence section to the state road that parallels the crest of the east valley slope of Cayuga. This gives many fine views up the valley, over the city, and down the lake; makes one envy those who have their abodes placed on the jutting points that command both these outlooks. It is a walk to take in late afternoon for then one is almost sure to surprise a fine sunset, for these come frequently and are famous for their display of color. Other easy walks are through Forest Home village and up the Fall Creek valley to Varna, the one south along the Six Mile valley on the road that continues the State Street highway, or to go out along the Tru-

mansburg road on the west side of the Cayuga Valley.

For the autoist the trip to the George Junior Republic, an institution of national fame, to Dryden, to Cortland and thence on to Homer is to be especially commended for its beauty and wide extent of view all along the route. Homer is the birthplace of Andrew D. White, is also the home of "David Harum," and has many fine bits of colonial architecture, particularly doorways. Other trips that find especial favor are those to Groton and Auburn by the side of Owasco Lake, to Brookton where there is an old mill and some picturesque houses under grand elms, to Slaterville Springs, once a famous resort on account of its mineralized waters that have the peculiar property of giving a metallic iridescence to glass articles immersed in them for a time; and the hackneyed, but always worth while ride to Watkins. In fact, a tour of the whole Finger Lakes district will be found interesting, and varyingly so, every mile of the route.

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